

CITY OF CHULA VISTA WASTEWATER USER AND RATE RESTRUCTURING STUDY

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Prepared For:



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Section 1

Executive Summary

1.0 Executive Summary

To ensure that the cost of sewer service is distributed fairly and equitably among the City's residents, we have prepared a sewer pricing structure review and a long-range financial plan. As set forth more fully below, if this study's recommendations are adopted, average and median-single family residences will pay lower sewer service rates.

Few things are more important in our country than ensuring that wastewater is properly treated and returned to the environment. We often take for granted the thousands of people who are employed daily in addressing this country's wastewater needs. From the Utility Managers who are responsible for making sure that proper wastewater services are provided to residents, businesses, and industries; to governing bodies who must ensure that customer interests are understood and that utilities properly address public concerns; to consultants who assist utilities in addressing financial, economic, engineering, and other professional requirements, a broad spectrum of people play a part in ensuring that appropriate wastewater services are provided to the public.

A major challenge confronting the wastewater industry is acquiring adequate funds to finance and operate capital equipment and facilities, and implementing appropriate pricing structures to ensure the self-sufficiency of the utility. Long range planning is important because it is necessary to make sure that appropriate facilities will be constructed to address environmental regulations and meet the service needs of customers. The financing vehicle that is used by the utility and the timing of the financing are crucial in ensuring that each generation of wastewater customers is appropriately paying for facilities that they need, and not inappropriately financing facilities for other generations of customers. It is a major goal of an effective financial plan to "match" economic impact on customers with benefits received by these customers.

The financial requirements related to operations costs and capital facilities are identified in this plan by year, and appropriate sources to finance these costs have been developed. During this development of appropriate sources of financing, economic impacts on utility customers were carefully identified and considered.

In addition, the City requested a review of their current sewer service charge structures and billing formulas to ensure that Chula Vista will continue to maintain an effective pricing structure. This review was two-fold. The City's current rate structure and formulas were reviewed based on changes in industry standards from Chula Vista's last rate study in 1991¹. Additionally, the City wants to ensure their sewer pricing structure continues to achieve the goals and objectives of the community.

¹ City of Chula Vista, Wastewater Rate Plan and Revenue Program, James M. Montgomery, May 1991.

Section 1

Executive Summary

Upon the completion of the sewer pricing structure review and the long-range financial plan, we offer the following observations and recommendations.

Observations:

- The current user rate structure was implemented in 1991. Since that time the City has adjusted rates annually in an attempt to keep up with the cost of both their collection system maintenance costs as well as the City of San Diego's Metro costs for transportation, treatment, and disposal of Chula Vista's wastewater. The current rate structure provides for a uniform flat rate for single family user and a flow based charge for multi-family, mobile homes, and nonresidential users.
- Technically, the current rate structure is performing as anticipated. However, it has been requested that flow based rates should be addressed as part of this study.
- Currently, the billing methodology varies among users in the City, based on their geographic location. Those customers in Otay water District's jurisdiction are billed on a monthly basis for both water and sewer service on the same bill by Otay Water District. Those customers who live in the pre-annexation area of the City under Sweetwater Authority's jurisdiction are billed on a bi-monthly basis for sewer service by the City's Finance Department. The other customers who reside in the Montgomery area who are either under Sweetwater Authority's jurisdiction or Cal-American's jurisdiction are billed on an annual basis on the tax bill by the County of San Diego Assessors' Office.
- There is a revenue shortfall of \$5.5 million between the current sewer user rates and the fiscal year 2004 revenue requirement.
- Changes in legal and industry standards for establishing sewer charges have occurred since May of 1991 when the last study was completed.
 - The City of San Diego, who provides wastewater treatment for the City of Chula Vista has commissioned two secondary wastewater treatment plants. These are the North City West and South Bay Water Reclamation Plants.
 - With the start-up of these facilities the City's commercial categories must be redefined. Sewage strengths must now be defined in both biochemical oxygen demand (BOD)² and suspended solids³. The City currently defines sewage strength to only include suspended solids.

² Biochemical oxygen is defined as a pollutant of concern in wastewater treatment. Biodegradable organic materials are measured most commonly in terms of BOD. This determination involves

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Recommendations:

- **Modify Billing Structure** – Chula Vista should adopt a revised billing formula for all user classes. The revised billing formula is composed of the following elements:
 - **Fixed Annual Charge** – An annual service charge to recover the fixed costs associated with the utility. The American Water Works Association (AWWA) standards suggest that fixed costs include costs directly associated with serving customers as well as the pure fixed costs of the utility. These fixed costs have to be paid whether or not usage materializes. This includes customer and support services costs, rents and leases, and the annual contribution to the Sewer Facility Replacement Fund. The addition of this component provides the City with more revenue stability.
 - **Commodity Charge** – A commodity charge that recovers costs that tend to vary with the quantity and strength of sewage, including treatment and energy costs.
- **Long Range Planning** – Chula Vista should continue to use a long range planning approach to funding both operational and capital expenses. A copy of the City's projected five-year long-range plan is included in Appendix A.
- **Adopt A Four Year Financial Plan** – Chula Vista should adopt the four-year rates for fiscal years 2004 to 2007 as shown in Table 1-1. This rate case provides the lowest cost to the City's customers while meeting the City's wastewater treatment and local collection system maintenance and operations costs.

In summary, we believe that the City adopted a practical structure for sewer charges in 1991. This study recommends basic structural refinements to conform to current industry standards and to provide for flow-based rates for all users. These structural adjustments, plus the adoption of the four-year financial plan, will provide for a continued program to be carried out to protect the citizens of the City of Chula Vista in an environmentally proactive fashion.

the measurement of the dissolved oxygen used by microorganisms in the biological oxidation of organic matter.

³ Suspended solids are defined as a pollutant of concern in wastewater treatment. Non-filtrable (suspended) solids can lead to the development of sludge deposits and anaerobic conditions when treated wastewater is discharged into the aquatic environment.

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Executive Summary

**Table 1-1
City of Chula Vista
Proposed Four-Year Rate Case**

	Accounts	Proposed			
		FY04	FY05	FY06	FY07
Monthly Service Charges (\$/Month) (1)					
5/8"	39,541	\$ 6.10	\$ 7.20	\$ 7.45	\$ 7.71
3/4"	733	\$ 6.10	\$ 7.20	\$ 7.45	\$ 7.71
1"	459	\$ 10.07	\$ 11.91	\$ 12.33	\$ 12.76
1 1/2"	458	\$ 20.00	\$ 23.68	\$ 24.51	\$ 25.36
2"	13	\$ 31.92	\$ 37.80	\$ 39.12	\$ 40.49
4"	6	\$ 59.73	\$ 70.75	\$ 73.22	\$ 75.79
6"	6	\$ 99.46	\$ 117.82	\$ 121.94	\$ 126.21
8"	2	\$ 198.79	\$ 235.50	\$ 243.74	\$ 252.27
Total Users	41,218				
Variable Commodity Rates (In Addition To Service Charge \$/HCF)					
Residential:					
Single Family	37,687	\$1.90	\$1.99	\$2.15	\$2.34
Multi-Family	2,036	\$1.90	\$1.99	\$2.15	\$2.34
Mobile Homes	12	\$1.90	\$1.99	\$2.15	\$2.34
Commercial:					
Low	1,219	\$1.90	\$1.99	\$2.15	\$2.34
Medium	72	\$2.29	\$2.42	\$2.63	\$2.87
High	110	\$3.78	\$4.02	\$4.40	\$4.85
Golf Club House	3	\$2.29	\$2.42	\$2.63	\$2.87
Government	79	\$1.90	\$1.99	\$2.15	\$2.34
Special User (2)	0	Varies	Varies	Varies	Varies
Total Users	41,218				

(1) All single family users are considered to have a 5/8" water meter for service charge purposes. Multi-Family, mobile home and commercial users service charge is based on actual water meter size.

(2) Special User rates are determined individual based on their sewage strengths

1.1 Background

In 2002, the City of Chula Vista contracted with PBS&J to prepare a sewer user rate case to establish the rates for fiscal years 2004 to 2007. The purpose of this study is to:

1. Update the City's current sewer user rates to insure full cost recovery
2. Suggest any rate structure revisions required to meet the federal and state requirements as well as changes in industry standards since 1991.
3. Look at flow based alternatives for single family user rates.

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The City's current rate structure and rates were established in 1991 by a prior rate study. The study established user classes for residential, low-strength commercial (less than 200 milligram per liter suspended solids⁴), medium strength commercial (200 through 499 milligrams per liter suspended solids), high strength commercial (greater than 500 milligrams per liter suspended solids), and other categories, which include high volume users (wastewater discharge greater than 25,000 gallons per day) and septage, whose rates are determined individually. The sewage strength concentrations for these classes of users are taken from the State Water Resources Control Board (SWRCB) Revenue Program Guidelines. For large volume users that sample wastewater discharge, the sampling results are used in lieu of the SWRCB estimates. A copy of nonresidential users that fall in each of the three sewage strength categories is included in Section 2.

The City's current user charge system is intended to distribute the cost of sewer service amongst their customers. Wastewater charges are currently applied to the City's residential customers on a per living unit basis. Table 1-2 reviews the current rates and rate structure.

Table 1-2
City of Chula Vista
Summary of Current Rate Structure and Rates⁵

<i>Single Family (\$/Month per Living Unit)</i>	\$22.37
<i>Multi-Family (\$/HCF)</i>	\$2.24
<i>Commercial/Industrial (\$/HCF) (1)</i>	
Low Strength	\$2.05
Medium Strength	\$2.52
High Strength	\$3.36
(2) Commercial/Industrial rates are based on 90% monthly water through their water meter.	

The prior rate study has formed the basis of the City's current wastewater rate structure, since that time and most years, annual adjustments have occurred to cover increased operations, maintenance, and capital costs, especially those associated with sewage treatment provided by San Diego Metro.

⁴ Suspended solids are defined as a pollutant of concern in wastewater treatment. Non-filterable (suspended) solids can lead to the development of sludge deposits and anaerobic conditions when treated wastewater is discharged in the aquatic environment.

⁵ Include Stormdrain and Sewer Facilities replacement fees.

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Since the 1991 study was performed, several things have occurred (some of which were mentioned earlier) that have significant impacts on the City's user rates. One of these, the construction of two new secondary treatment facilities as part of the Metro system, necessitates the inclusion of BOD as a component of sewage strengths determination in non-residential rates. Also, to address the concerns of residents who wish to see the benefits of their water conservation efforts reflected in their sewer bill, the City wishes to explore revising their single family rate structures from an equivalent dwelling unit (EDU) to a flow based rate structure. The City currently assumes a flow of 265 gallons per day per single-family residence. All multi-family and commercial users currently have flow based rates, and it is assumed that 90 percent of their water consumption, as measured by their water meter, is discharged to the sewer system.

Various methods of developing single family flow based rates are discussed in ensuing sections of this study. In addition, further refinements are discussed for the multi-family and commercial/industrial rate structures.

Section 2

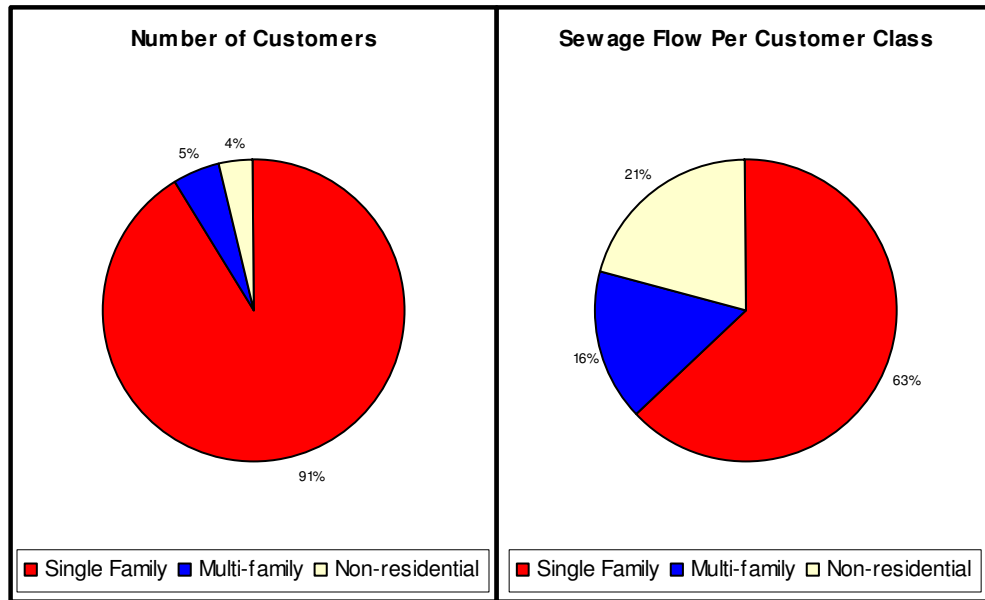
Wastewater Rate Determination

2.1 Customer Characteristics

The City of Chula Vista provides wastewater collection and treatment services to approximately 41,000 billing accounts. These accounts are further broken into residential and non-residential classes for the purpose of establishing wastewater user fees. The first step in recovering the costs of providing wastewater services to these customers is to identify them and the characteristics of their wastewater.

The first step in the development of customer wastewater characteristics was to summarize their water consumption. Water Consumption of all classes of user's was reviewed and summarized for the study period. Table 2-1 summarizes the number of living units within the residential customer class and the number of accounts within the non-residential class, as well as the water consumption converted to sewage flow per user group. The water consumption is shown on an annual basis for all user classes except for single family users where winter month water is utilized. Winter month water usage in single family rate determination is more fully discussed later in this Section. As Table 2-1 shows, single-family users represent 91 percent of the customers and generate 63 percent of the sewage flow, multi-family and mobile home users constitute 5 percent of the users and account for 16 percent of the sewage flow, and non-residential users represent 4 percent of the customers and generate 21 percent of the sewage flow.

Table 2-1
City of Chula Vista
Number of Living Units (Single & Multi-Family) and Accounts (Non-Residential) Versus Sewerage Flow Generated by Each Customer Class



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Wastewater Rate Determination

The quality and quantity of effluent from different customer classes varies widely. This is an important fact, as wastewater system costs are dependent on both the quality and quantity of effluent from the customer classes. The quality and quantity parameters applicable to the City's wastewater system include average wastewater flow, biochemical oxygen demand (BOD), and suspended solids (SS). The City provides only wastewater collection for their customers' sewage. Transportation, treatment, and disposal are provided by the City of San Diego's Metropolitan Wastewater Department (Metro).

Published data is available on the typical quality of wastewater from different types of commercial and industrial establishments. Table 2-2 summarizes the discharge loading of residential and various common non-residential users normally found in a City. This data is from published sampling compilations from the City of San Jose, East Bay MUD, Monterey Regional Water Pollution Control Agency, Sacramento County Regional Sanitation District, and the County Sanitation Districts of Los Angeles County. The State Water Resources Control Board (SWRCB), the overseer of wastewater rates for all Environmental Protection Agency (EPA) grant and low interest loan funded agencies in the State, considers this data representative of most cities in California. All individual commercial discharge loadings used in this study are from this approved SWRCB data. Although the City does not have all of these types of users, the sewer user strength classifications are provided for reference in grouping the non-residential.

Table 2-2
City of Chula Vista
Compilation of Published Data on Sewer User Strength Classifications

User Classification Description	Proposed Strength (mg/l)			Percent of Single Family
	BOD	SS	Weighted Average	
Strength Weighting Factor	50%	50%		
Residential Single Family	200	200	200	100%
LOW STRENGTH CLASSIFICATIONS				
Low I Strength:				
Soft Water Service	3	55	29	15%
Office With Public Access	80	80	80	40%
Car Wash	20	150	85	43%
Veterinarian	130	80	105	53%
Business Equipment Rental	130	80	105	53%
Business Services -- Other	130	80	105	53%
Office (Finance, Insurance, etc.)	130	80	105	53%
Office (No Public Access)	130	80	105	53%
Office (Medical Services)	130	80	105	53%
Personal Services (Other)	130	80	105	53%
Photo & Portrait Studios	130	80	105	53%
Manufacturing - Textile Mill Products	115	115	115	58%
Schools	130	100	115	58%

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Table 2-2
City of Chula Vista
Compilation of Published Data on Sewer User Strength Classifications

User Classification Description	Proposed Strength (mg/l)			Percent of Single Family
	BOD	SS	Weighted Average	
Strength Weighting Factor	50%	50%		
Residential Single Family	200	200	200	100%
Low II Strength:				
Laundromat-Public	150	110	130	65%
Landscaping Services	150	150	150	75%
Amusement & Recreation: Indoor & Out	150	150	150	75%
Auto Parking	150	150	150	75%
Barber Shop	150	150	150	75%
Beauty Shop	150	150	150	75%
Church (No Kitchen)	150	150	150	75%
Community Center (No Kitchen)	150	150	150	75%
Grocery Market (No Butcher or Baker)	150	150	150	75%
Health Spa	150	150	150	75%
Kennel	150	150	150	75%
Malls/Dept. Stores (No Food Svcs)	150	150	150	75%
Manufacturing (Other)	150	150	150	75%
Manufacturing (Apparel & Other Textiles)	150	150	150	75%
Manufacturing (Furniture)	150	150	150	75%
Membership Organizations	150	150	150	75%
Museum/Art Gallery	150	150	150	75%
Nursery/Greenhouse	150	150	150	75%
Office (Construction)	150	150	150	75%
Massage Parlor	150	150	150	75%
Retail Apparel and Accessory Store	150	150	150	75%
Retail Bldg. (Materials & Gardening)	150	150	150	75%
Retail (Packaged) Food (No Sewer Disposal)	150	150	150	75%
Retail Furniture & Home Furnishings	150	150	150	75%
General Merchandise -- Retail/Wholesale	150	150	150	75%
Retail Trade -- Misc. (Except Food/Drink)	150	150	150	75%
Storage, Warehouse & Outdoor	150	150	150	75%
Studio/Recording Sound Stage	150	150	150	75%
Theater/Auditorium (No Food)	150	150	150	75%
Low III (Residential) Strength:				
Convalescent Homes	250	100	175	88%
Hospital	250	100	175	88%
Other Health Services	250	100	175	88%
Transp. & Utilities (SIC 400 through 489)	200	150	175	88%
Agricultural Production	150	250	200	100%
Agricultural Services - Other	250	150	200	100%
Bar Without Restaurant	200	200	200	100%
Restaurant -- Preprocessed Only	200	200	200	100%
Social Services	200	200	200	100%
Average Low Strength Per Low Class	200	200	200	100%

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Table 2-2
City of Chula Vista
Compilation of Published Data on Sewer User Strength Classifications

User Classification Description	Proposed Strength (mg/l)			Percent of Single Family
	BOD	SS	Weighted Average	
Strength Weighting Factor	50%	50%		
Residential Single Family	200	200	200	100%
MEDIUM STRENGTH CLASSIFICATIONS				
Medium I Strength:				
Hotel (No Restaurant)	310	120	215	108%
Prison With Food Service	310	120	215	108%
Auto Repair (No Steam Cleaning)	180	280	230	115%
Auto Service Station (No Steam Cleaning)	180	280	230	115%
Agricultural Services -- Animal	350	150	250	125%
Auto/Vehicle Sales	300	200	250	125%
Repair Services -- Misc.	250	250	250	125%
Manufacturing -- Rubber/Plastic Products	200	350	275	138%
Medium II Strength:				
Manufacturing -- Electric/Electronic Equipment	300	350	325	163%
Manufacturing - Instruments	300	350	325	163%
Manufacturing -- Fabricated Metal Products	300	350	325	163%
Manufacturing -- Transport Equipment	400	250	325	163%
Laundromat, Commercial	450	240	345	173%
Transportation -- Bus/Air Terminal	350	350	350	175%
Medium III Strength:				
Malls/Shopping (Including Food Sales)	400	400	400	200%
Manufacturing -- Machine Shops	290	550	420	210%
Manufacturing -- Metal Industry	290	550	420	210%
Manufacturing -- Lumber & Wood Products	431	431	431	216%
Manufacturing -- Stone, Clay, Glass Products	200	700	450	225%
Reproduction/Mailing Service	500	400	450	225%
Hotel (With Restaurant)	500	600	550	275%
Manufacturing -- Paper/Containers	700	500	600	300%
Manufacturing -- Printing & Publishing	700	500	600	300%
Laundry (Industrial)	670	680	675	338%
Average Medium Strength Per User Class	400	400	400	200%

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Wastewater Rate Determination

Table 2-2
City of Chula Vista
Compilation of Published Data on Sewer User Strength Classifications

User Classification Description	Proposed Strength (mg/l)			Percent of Single Family
	BOD	SS	Weighted Average	
Strength Weighting Factor	50%	50%		
Residential Single Family	200	200	200	100%
HIGH STRENGTH CLASSIFICATIONS				
High I Strength:				
Agricultural Production - Livestock	1,200	350	775	388%
Mortuary	800	800	800	400%
Grocery (W/Butcher or Baker)	800	800	800	400%
Manufacturing -- Baked Foods	1,000	600	800	400%
Restaurant/Bar (W/Food Preparation)	1,000	600	800	400%
Manufacturing -- Beverages	1,500	300	900	450%
Manufacturing -- Paint	1,300	1,100	1,200	600%
Manufacturing -- Other Chemical Products	1,300	1,100	1,200	600%
High II Strength:				
Manufacturing -- Dairy Products	2,369	922	1,646	823%
Steam Cleaning -- Auto	1,150	2,150	1,650	825%
Manufacturing -- Other Food Products	2,213	1,453	1,833	917%
High III Strength:				
Septage	5,400	12,000	8,700	4350%
Average Strength Per High Strength Class	1,000	600	800	400%

To simplify administration, users are divided into classes based on the estimated strength of their wastewater for the purposes of this study. The City's users are classified into three classes of residential users (Single-Family, Multi-Family and Mobile Homes) and four classes of non-residential users (Low-Strength, Medium-Strength, High-Strength and Institutional). In the future, should the City have additional commercial or industrial customers that due to their unique characteristics and/or high volume usage do not fit within any of the established user categories, they should create a unique and separate user class for the customer.

2.2 Fiscal Year 2004 Wastewater Rate Revenue Requirement

The costs of wastewater collection, treatment, and disposal, together with associated general and administration expenses, are the basis for wastewater rates. The City of

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Wastewater Rate Determination

Chula Vista fiscal year 2004 total annual wastewater revenue requirement⁶ is established at \$19.7 million as shown in Table 2-3. The wastewater rate revenues expected during fiscal year 2003 from the current wastewater rates is about \$14.2 million. Therefore the revenue required from the fiscal year 2004 wastewater rates is \$5.5 million lower than is required to meet the current operating and capital needs of the utility. In addition, the City collects the Storm Drain fee with the Sewer service fee as a matter of convenience.

Table 2-3
City of Chula Vista
Budget Summary and Cost Allocation for fiscal year 2004

Description	FY04	Customer	Capacity	Capacity	Collect	Clean Water	Treatment	Power
Expenditures:								
Wastewater Engineering	\$403,034	\$0	\$0	\$0	\$403,034	\$0	\$0	\$0
Wastewater Operations Administration	\$109,038	\$608	\$7,236	\$0	\$101,194	\$0	\$0	\$0
Wastewater Maintenance	\$3,121,389	\$3,608	\$686	\$0	\$3,099,685	\$0	\$0	\$17,410
Lift Station/Pool Maint.	\$495,493	\$8,083	\$69,392	\$0	\$376,719	\$0	\$0	\$41,298
Sewer Service Expenditures	\$21,916,204	\$6,983	\$3,397,241	\$0	\$0	\$0	\$18,511,980	\$0
Sewer Billing and Collection	\$115,342	\$115,342	\$0	\$0	\$0	\$0	\$0	\$0
Sewer Service Risk Management	\$53,709	\$0	\$0	\$0	\$53,709	\$0	\$0	\$0
Storm Drain Fund Revenue Transfer	\$513,719	\$0	\$0	\$0	\$0	\$513,719	\$0	\$0
Sewer Facilities Replacement Fund Transfer	\$483,586	\$0	\$0	\$0	\$483,586	\$0	\$0	\$0
Subtotal Expenditures	\$27,211,515	\$134,625	\$3,474,555	\$0	\$4,517,928	\$513,719	\$18,511,980	\$58,708
Less Other Revenues	(\$7,504,177)	(\$66,950)	(\$236,900)	\$0	(\$282,969)	\$0	(\$6,917,358)	\$0
Revenue Requirement	\$19,707,338	\$67,675	\$3,237,655	\$0	\$4,234,959	\$513,719	\$11,594,622	\$58,708
	9%	0.3%	16.4%		21.5%	2.6%	58.8%	0.3%

The annual revenue requirement is the amount of revenue that should be generated by wastewater rates in order to cover costs associated with operations and maintenance (O&M) of the utility. This includes other financial needs such as capital replacement and debt service, with consideration of fund and reserve balances. The determination of the revenue requirement starts with the annual operations cost of the enterprise, including interfund transfers. To this planned capital expenditures are added, which, in this case, are represented by transfers to capital reserves. The revenues anticipated from other sources such as interest earnings and other service charges reduce this total expenditure requirement.

The annual revenue requirement can be related to wastewater treatment parameters or functional cost categories. As a part of this rate study, a detailed cost-of-service analysis has been performed based upon the City's preliminary fiscal year 2004 budget. The costs associated with providing sewage collection and treatment to the City's customers has been further allocated to fixed, semi-variable, and variable components, which is fully discussed in the cost allocation steps.

⁶ The total annual revenue requirement is the amount of revenue required in one year to meet all capital and O&M expenditures incurred or obligated during the year.

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Wastewater Rate Determination

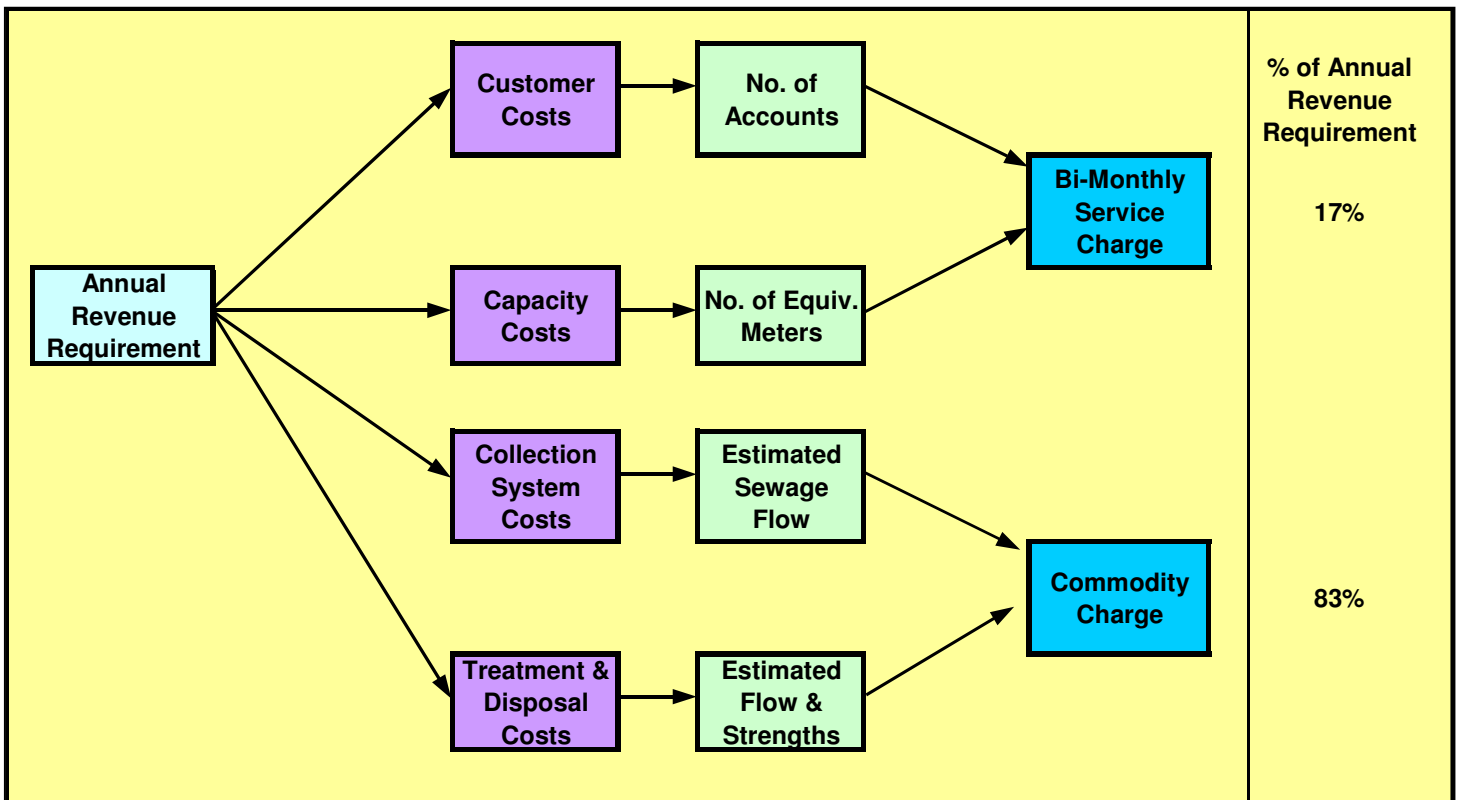
It is important to note that any change in the rate structure will affect the amounts paid by each customer. That is, with any type of rate structure change some customers will have a larger and some customers will have a smaller change in their wastewater bills.

2.3 Cost of Service Analysis

The wastewater rates developed in this study are based on the cost of providing service. The wastewater rates discussed in this Section were first developed on a revenue neutral basis using the City's fiscal year 2003 wastewater enterprise fund budget and then updated to include the revenue requirement for fiscal year 2004.

The cost of wastewater collection, treatment, and disposal, together with associated general and administration expenses are the basis for wastewater rates. The cost allocations are based on a full recovery cost-of-service philosophy. The cost allocation process is shown schematically in Figure 1, numerically in Table 2-3 and in greater detail in Appendix C.

Figure 1
City of Chula Vista – Wastewater Utility
Cost Allocation Flow Diagram



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Wastewater Rate Determination

2.3.1 Step 1: Identify Fixed and Variable Costs

The total annual revenue requirements for wastewater collection, treatment, and disposal services include O&M expenses, capital costs, and other expenses, less other non-operating revenues. The distinction between fixed and variable costs depends on how these costs vary when an independent variable changes. For example, the system's flow is frequently considered to be the independent variable. However, it could just as easily be the vehicle miles driven to maintain the collection system, the hours of operation, or the quality of the sewage discharged by the City's users.

If a cost is a function of the independent variable, the cost is said to be a variable cost. The change in cost per unit variable is known as the incremental cost. Cost of sewage treatment by Metro and utility costs such as electricity and gas are examples of variable costs. They increase in proportion to the volume and quality of the sewage discharged by the City's users. An additional category of cost is semi-variable cost. This type of cost increases by degrees. For example, materials, labor, and supervisory cost are stepwise functions of the number of operating shifts.

If a cost is not a function of the independent variable, the cost is said to be a fixed cost. Rent, insurance, leases, property taxes, depreciation of assets, debt service, administrative overhead, and licenses are typical fixed costs. These costs will be incurred regardless of wastewater flow levels or quality.

2.3.2 Step 2: Define Components of a Service Charge And Fixed Versus Variable Costs

The City currently only has a commodity charge for multi family dwellings and non-residential users. Most agencies are currently adding a service charge to recover at least a portion of their fixed costs. This provides for revenue stability and is viewed favorably by bond rating agencies. The wastewater service charge is established similar to a water service charge. Reviews with Staff have lead to the conclusion that the wastewater rate structure should incorporate a service charge component, and that it should reflect a percentage of the fixed capacity-related⁷ cost of providing service.

The service charge is further defined to include the amount necessary to recover all customer-related costs. This is consistent with the fact that a material part of the operating and capital costs of a utility business is more directly and more closely related to the number of customers than to consumption or flow.⁸ The American Water Works Association (AWWA) defines a customer charge as those recovering metering, billing,

⁷ Capacity is defined, as the utility's ability to have resources available to meet the wastewater service needs of its customers. It represents the ability of the utility to meet the quantity, quality, peak loads, and other service needs of the various customer or classes of customers served by the utility.

⁸ Principles of Public Utility Rates, James C. Bonbright, Public Utilities Reports, Inc. 1988.

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collection, administration, and accounting costs related to the customer.⁹ Included are such expense accounts as office supplies, postage, and data processing.

Also included in the service charge are those costs, which are incurred regardless of whether service is used (i.e. permit fees and debt service). Allocation of such fixed costs as depreciation to fund replacement reserve capital projects are appropriate (and defensible in purely economic terms), but may increase the service charge for low-usage customers.

The remaining costs of operating the City's sewer collection and treatment systems were then allocated to the variable or commodity portion of the wastewater user rate.

The establishment of a service charge is especially important for the City of Chula Vista in light of the proposed change to the single family user rate structure. Single family residents have historically provided approximately 63 percent of the revenue, which was all fixed revenue as they are currently billed on a flat rate system. Without the addition of a service charge for residential and non-residential users the City's revenue stream would convert to 100 percent variable which would make the City highly vulnerable to external factors such as drought, extreme wet weather, etc. A service charge would provide the City with \$3.4 million in fixed revenue, which will cover 17 percent of their revenue requirement. In Southern California it is not unusual to have a service charge that recovers 30 percent or more of the annual revenue requirement. However this has a greater impact on the low end user.

2.3.3 Step 3: Define Wastewater System Parameters

Once the revenue requirements of the City's wastewater utility have been allocated between fixed and variable, the next step in the cost allocation process is to allocate the City's wastewater facilities to the treatment parameters of flow, BOD, and TSS. All costs associated with the City's wastewater collection system are allocated 100 percent to flow. The treatment costs are allocated based upon Metro's functional-design based cost allocation. Costs associated with treatment are currently allocated 51.8 percent to flow, and 23.2 percent to BOD and 25 percent to SS to the City's users¹⁰. The Metro functional-design based cost allocation is weighted very heavily to flow as a large portion of the Metro Facilities are water reclamation plants, pipelines, and pump stations. It should be noted that the City currently charges their customers based on flow and SS. This is due to the fact that when the City's last rate study was performed the only commissioned wastewater treatment plant in the Metro system was Point Loma, which is an advanced primary treatment plant. This is one of the major changes recommended by this study to keep the City in compliance with Federal and State regulations.

⁹ Water Rates, American Water Works Assn., AWWA Manual M1, Fourth Edition, 1991.

¹⁰ Based on Table A for fiscal year 2003 from the Metro January 15,2002, budget estimates.

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2.3.4 Step 4: Residential and Non-residential Service Charge Determination

Once revenue requirements and system parameters are determined, the costs are allocated to all residential and non-residential users of the City. The service charge is comprised of fixed costs as discussed earlier. It is designed to recover the cost of customer service as well as a portion of other fixed costs. Customer and fixed costs incorporated into the service charge comprise 0.4 percent and 26.8 percent respectively of the City's fiscal year 2004 projected operating budget. Included in the fixed service charge are costs associated with customer and support services, as well as rents, leases, and the annual transfer to the sewer facility replacement fund. These costs are shown on Table 2-3.

Calculation of the wastewater service charge is similar to a water service charge. First customer service costs are allocated on a per account basis. Then the capacity portion of the fixed costs included in the service charge is applied to all customer classes on a per meter basis. The service charge for all single family residents are assumed to be equivalent to a 5/8" meter as a larger water meter is normally only installed for exterior water usage or fire flow requirements. Therefore, the actual meter size is excluded from the single family wastewater fee calculation and is replaced by a 5/8" equivalent meter. For non-residential and multi-family users the fee is allocated based on the actual size of the installed water meter to create the "equivalent customer"¹¹ portion of the service charge. This establishes the "fixed" or base portion of the wastewater fee.

2.3.5 Step 5: Residential and Non-Residential Flow and Class Determination

To simplify the administration of the rate structure, all of the City's customers are grouped into customer classes and their wastewater characteristics were identified (this was discussed earlier in this Section). These customer classes include single-family residential, multi-family residential, and various non-residential users. It should be noted that for purposes of this study the following categories are considered to not return water to the sewer and are therefore excluded in the rate structure modeling: fire/hydrant meter, construction, agriculture, and landscape.

Water use characteristics (and conversely wastewater flows) are relatively homogeneous for single family and multi-family customers. However, single family customers exhibit greater seasonal variation in exterior water use.

There are two basic methods to achieve the goal for single family use based rates; either a flat or variable commodity rate is added to the service charge discussed in Step 4. Both commodity rates utilize winter month water consumption. The winter months, primarily November through April, are considered to be the time of year when the majority of

¹¹ This is the means of relating larger water meter size customers to a base customer, typically a single family unit or other small-use customer, such as a 5/8" water meter. It represents the composite of all elements of cost differences between the base customer and the large-use customers to be served. It is expressed as a ratio of the base customer unit.

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water is used inside the home, for bathing, washing clothes, etc., and when far less water is used for outside irrigation¹². This means a higher percentage of water is returned to the sewerage system. Since sewerage system costs should be allocated to customers proportionate to their use, this is the fairest way to bill customers.

Water use patterns vary greatly during the year and between users. Climate, lot size, amount of vegetation, number of occupants, plumbing type, and individual use patterns come into play. Since some of these relate to outdoor use, winter water use better reflects wastewater flow. The County of San Diego extensively studied the relationship of winter water use to wastewater flow. The conclusions and recommendations to this study state: "As part of this study, wastewater flows were metered at three manholes that contained flows from single family residences only. The flows were metered during the winter of 1993/94, and the period corresponded to when the water districts metered water use. Both the wastewater and water flows could then be compared. What is interesting is that the winter water use and wastewater flow varied directly among the sites. This suggests that there is a direct correlation of flows to the sewer and metered winter water use."¹³

The single family water consumption component was derived from usage in winter months. This study reviewed detailed water data of a per account basis for a period of 18 months. The eighteen-month period used for this study was between September 2000 and February 2002. Three ways were determined for establishing a winter month average for each customer:

1. Each customer's individual lowest reading during the study period. This lowest consecutive reading is then annualized and becomes the single family's discharge to the sewer.
2. The average of each customers two lowest consecutive reading's during the study period. This average is then annualized and becomes the single family's discharge to the sewer.
3. The single family's entire customer classes' lowest winter month during the study period. Once again this is then annualized and becomes the single family sewer classes sewage discharge.

After review with staff, it was determined that the most equitable alternative to come up with single family winter month water usage is: to pick each customers two lowest months during the winter month period of November to April and then to convert them into an annual average for sewage flow generation. The single family winter water usage when annualized produces a flow of 5 million HCF or 10.2 MGD.

On the other hand, multi-family and non-residential users are prone to fluctuations in interior water use due to seasonal variations and transient occupancy as opposed to

¹² Metcalf & Eddy, "Wastewater Engineering – Disposal & Reuse", Third Edition, 1992.

¹³ John Carollo Engineers and The Keese Company: "Sewer Service Charges Study for the County of San Diego, May, 1994.

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exterior fluctuations in irrigation. Therefore, the City's multi-family and mobile home wastewater flows were determined by establishing an annual use average based on the last eighteen months. About 60 to 85 percent of the per capita consumption of water becomes wastewater (the lower percentages are applicable to the semiarid region of the southwestern United States).¹⁴ Based on the rate of return developed during the City's Chula Vista's water usage study, a rate of return for multi-family during the study period was determined to be 79 percent and mobile homes 84 percent. This is a revision to the City's current multi-family and mobile home customer's rate structure. Historically the City has used 90 percent as their rate of return to the sewer. Incorporating these changes the multi-family wastewater flow is estimated to be 1.3 million HCF or 2.6 MGD. The mobile home wastewater flow is estimated to be 125,000 HCF or .25 MGD. The total residential wastewater flow is estimated to be 13 MGD during the study period.

Non-domestic wastewater flow rates from non-residential sources vary with the type and size of the facility, the degree of water reuse, and on-site treatment methods, if any. For non-residential users without internal recycling or reuse programs, it can be assumed that the majority of the water used in various operations and processes will become wastewater. The rate-of-return for the City's non-residential customers has historically been set at 90 percent. The City's non-residential wastewater flows were estimated using the same annual water consumption records as the single and multi-family users. This developed a rate-of-return of 89 percent, which validates the 1991 study's assumptions. Published data has determined that industries without internal recycling or reuse programs, it can be assumed that 85 percent to 95 percent of the water used in various operations and processes will become wastewater.¹⁵ This is based on the fact that most of the non-residential customers in a City either have separate landscape meters or minimal landscaping. After review of the data we determined that the correct rate of return for non-residential users is 90 percent based on their water usage characteristics as a class and the mass balance of the entire wastewater user system.

The City's non-residential user category is further broken down into three classes of commercial, institutional, and special/industrial users. Annual water usage produced a non-residential user flow of 1.9 million HCF or 3.6 MGD. This provides a total wastewater flow from all residential and non-residential users of 16.6 MGD based on water usage converted to sewage flow by using the discussed rates of return.

¹⁴ Wastewater Engineering, Treatment, Disposal, and Reuse; Metcalf and Eddy, Inc., Third Edition, Page 25.

¹⁵ Wastewater Engineering, Treatment, Disposal, and Reuse; Metcalf and Eddy, Inc., Third Edition, Page 27.

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<u>User Class</u>	<u>Rate of Return</u>	<u>Flow Generation (MGD)</u>
Residential		
Single-Family	Winter Usage	10.2
Multi-Family	79%	2.6
Mobile Homes	84%	0.25
Non-Residential		
Commercial	90%	2.6
Total		16.65

The wastewater flows for the City were also determined by an analysis of the City's wastewater metering summaries. Using this data for residential and non-residential customers, the current residential and non-residential wastewater flows were estimated and compared to the water consumption data. The difference between the average of the metered flow discharged to the City's wastewater system and the water consumption data was less than 10 percent and was therefore considered non-material.

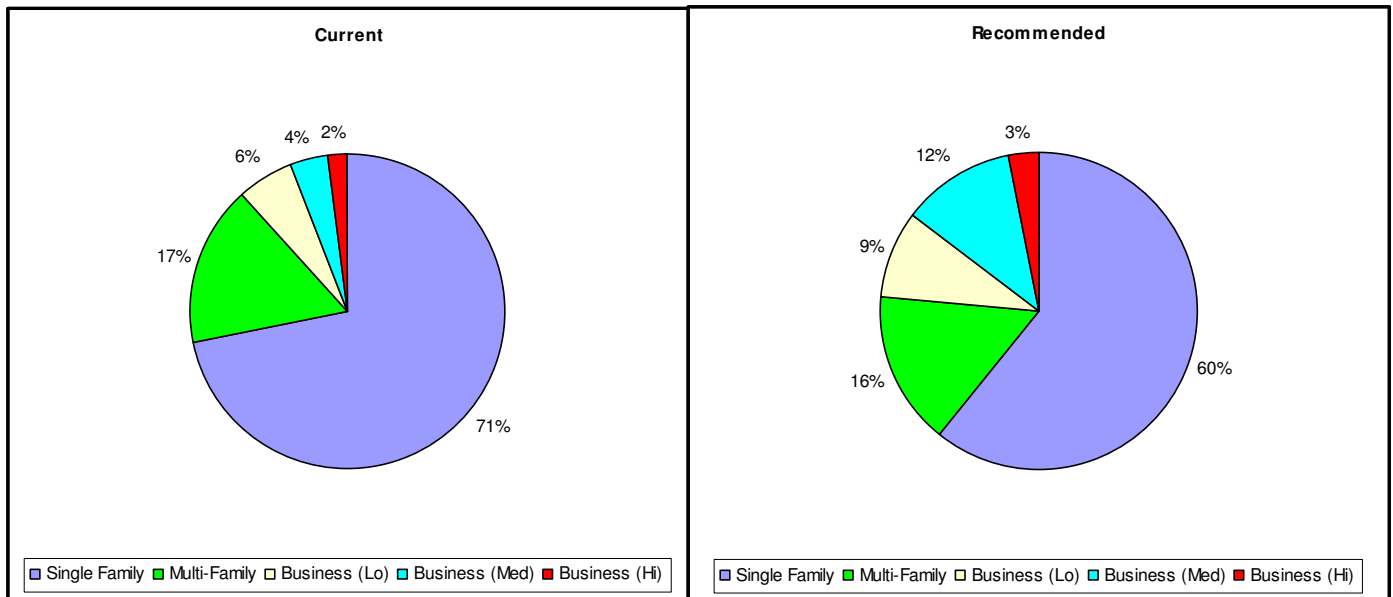
The City's residential and commercial users have been classified into a two-dimensional matrix. The residential users have three wastewater flow-to-use categories and one BOD and SS concentration. The non-residential users have one wastewater-flow-to-water-use categories and three BOD and SS concentrations. The quantities and strengths delivered to the City's system by all categories of users were analyzed. The annual discharges of volume, BOD, and SS were documented for the customer classes in order to develop an equitable rate structure in which user charges were devised which was proportional to both the quantity and strength of the wastewater discharged.

The entire customer base and its respective discharges were then totaled. Figure 2 illustrates the proportional base of quantity and quality of sewage of each user class in relation to the total City wastewater discharged to the treatment plant. This shows that the single-family class is proportionally responsible for 60 percent, multi-family and mobile home customers 16 percent, and non-residential and special/industrial customers 24 percent of the quantity and quality of wastewater generated and therefore of the annual wastewater budget. As shown on the exhibit this is a change from the current distribution of revenue by customers classes. This is due to the inclusion of BOD in the user rates. High quality lower strength sewage costs more to treat than residential sewage and therefore should be charged proportionately to the cost incurred.

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Figure 2
City of Chula Vista
Current Versus Proposed Revenue Responsibility Based on Flow, BOD,
and Suspended Solids Loading



2.3.6 Step 6: Final Wastewater Charge Determination

The semi-variable, variable costs, and the remaining non-operating revenues are then allocated based on the parameters of 51.8 percent flow, 23.2 percent BOD, and 25 percent SS to the various user classes (residential, non-residential and special/industrial). This allocation was done in three basic steps to determine the commodity portion of the wastewater fee per user class:

Step 1: The variable cost less variable revenues was allocated among the treatment parameters in proportion to the percentages of costs that the parameters represent.

Step 2: The amounts determined in Step 1 were divided by the total annual volume of sewage produced by the users of the City's system.

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Step 3: The unit costs¹⁶ determined in Steps 1 and 2 were then multiplied by the volume of each user class, and an annual rate in proportion to the user's demand on the system was established.

After these steps were taken it was determined that the requirements for each class of users based on the City's fiscal year 2004 budget is as shown in Figure 2. The revenue requirement by class reflects the funding of the additional revenue requirement for operational and capital costs as well as the inclusion for the first time of BOD in all users rates.

2.4 Alternative Wastewater Rate Structures

Once the costs are allocated to each of the three user classes a final cost allocation step must be taken: a rate structure for each user class must be determined and a rate set by class. Rate structures may vary between customer classes depending on specific rate-setting objectives and practical considerations. In all cases, the cost allocation and rate design steps result in rates where costs are proportionately distributed among customer classes.

The City's wastewater collection system and the Metro wastewater treatment plants are designed to serve differing demands placed upon it by its customers. To provide rate equity among users, it is necessary to allocate the costs of accommodating these demands to users in proportion to their wastewater discharge characteristics. One of the most important issues to be addressed in this wastewater rate study is to determine the most equitable cost allocation method.

Wastewater rate structures can be further grouped into two generally accepted methods of cost recovery for wastewater agencies - an equivalent dwelling unit (EDU) or a flow based system, which takes into account wastewater strengths. These two methods are described briefly below along with their advantages and disadvantages.

2.4.1 Equivalent Dwelling Unit System

In an equivalent dwelling unit (EDU) based system a single-family unit is considered to be one EDU. In the case of the City of Chula Vista one EDU is estimated to be 265 gallons per day (gpd) as shown below.

<u>Land use</u>	<u>Average Daily Flow</u>	<u>EDU Factor</u>
Single-Family	265 gpd	1 EDU

¹⁶ A unit cost is defined as the cost of producing a unit of a product or service. An example is the cost of treating one HCF of wastewater discharged by the City's customers.

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For other residential and non-residential users EDU's are computed by estimating the amount of flow generated and comparing that with the average residential flow. A commercial or industrial user's EDUs are calculated based on the building area established at the time that they take out a building permit. The City currently has a partial EDU based system of wastewater user charges for their residential users, while non-residential accounts are billed based on their annual water use and therefore fall into the "Flow Based System" described below. An EDU based system is only more equitable than a flow based system when a wastewater agency does not have timely access to the water consumption data of its residents. This is not the case in Chula Vista.

The advantages of an EDU system are:

1. It is a relatively simple rate structure. EDUs are determined initially and then remain fixed.
2. The yearly wastewater fee is simple to calculate once a formula is determined. User charges remain stable from month to month maintaining a stable source of revenue for the City.

The disadvantages of an EDU based system are:

1. It does not take into account changes in use patterns among its users.
2. It is difficult to keep the information on the parameters required to determine the EDU's when they need to be updated.
3. Keeping track of growth or, in some cases, decline in existing activity is difficult. For example, in an EDU based system the user fee for a restaurant is normally determined on the number of seats assigned in their business license. If a restaurant expands and adds a few more seats, there is a good chance the City may not be apprised of the change and hence the EDUs for the user may not change.
4. It does not take into account variations between similar customers. For example, two restaurants with the same seating capacity would be charged the same monthly amount based on EDU's. However, if one restaurant was successful and generated much more wastewater than the other one it would still be charged the same based on an EDU system.
5. The inequity and inability to consider wastewater strengths appropriately.

2.4.2 Flow Based System with Appropriate Strengths

A flow-based system, which takes into account industry standard wastewater strengths, provides a much more equitable system of charges than an EDU rate system. However, water usage for residential customers varies widely depending on usage of irrigation. The following is a discussion of several different methods of establishing wastewater rates based on metered water. These were reviewed in assessing the appropriateness of flow based rates for the City's wastewater customers and in meeting the City's rate objectives.

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2.4.3 Summary of Wastewater Commodity Rate Alternatives

Once the cost per user class was developed, the variable portion of the wastewater charge for users was established based on various alternatives. In the residential user classes both a variable and flat commodity rate structure combined with the service charge were explored. In the non-residential class only a variable commodity rate structure, adjusted for sewage strengths, combined with the service charge was considered.

2.4.3.1 Single Family Rate Determination

Two of the overall objectives in this rate study were that rates should be fair and equitable as well as sensitive to the cost of service for basic needs. The consultants reviewed several alternatives for single family rate structures with the City staff. Primary alternatives are discussed below. Other alternatives that were considered in lesser detail by the consultant are not presented herein.

- Alternative 1 – Uniform Flat Rate

This rate is similar to the City's current quasi-EDU system, but is established based upon proportionate water usage of the single family user class rather than assumed gallonage. This method translates into a flat rate wastewater user charge of \$27.98. The City's current flat rate is \$22.37. The advantages of a uniform flat rate structure are:

1. All users pay an average rate and there is never a debate over water usage during the winter months.
2. It provides maximum revenue stability for the City and is easy to administer.
3. It can also be accommodated by the City's current utility billing system.

The disadvantages of a uniform rate structure are:

1. A uniform flat rate does not take into account actual use patterns of the City's single-family residential customers and it does not protect base use affordability. Base use affordability is defined as providing sewer service to lower than average water use customers.

- Alternative 2– Service Charge With Variable Commodity Rates

As an alternative to one flat rate based upon winter water usage, the consultant explored a service charge and variable commodity rate structure for single family users based upon **metered** winter water usage. This is similar to the rate structure proposed for multi-family and non-residential users later in this Section. The single-family customer would pay a monthly service charge plus a variable commodity charge of \$1.90 per HCF. The commodity charge could either be

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subject to a cap based on each customer's individual winter month minimum water usage or an annual rate-of-return equal to the difference between low winter and high summer water usage. A minimum charge per billing cycle would be established equal to the service charge plus one HCF of commodity charge.

This type of rate structure is the most popular form of billing multi-family and non-residential customers as those classes of users tend to have either limited exterior landscaping or a separate irrigation meter, and therefore minimal exterior water is captured in the wastewater commodity charge. And over the past ten years, this type of rate structure, in one of five basic forms has exceeded the flat rate structure in popularity. In studies prepared by the SWRCB 63 percent of wastewater agencies utilized some form of variable rate structure while 37 percent retained either and EDU or flow based flat rate structure.

The advantages of some form of a variable rate structure include:

1. A major sense of equity between single-family users of the City's wastewater system.
2. It provides for more individualized wastewater rate determination and gives both the customer and the City ultimate flexibility.

However a variable rate structure is not without its disadvantages:

1. The first and most major is the rate of return determination: whether it is based on winter water usage, what form that winter water usage takes, and how the customer perceives their account has been adjusted to exclude outside irrigation. The fact that the customers are normally undercharged in the winter does not negate the situation in their eyes.
2. This method of billing can also cause extreme revenue volatility, as the service charge does not recover all fixed costs.
3. This is the most administratively complex of the two form of rate structures and could require additional staff time. It could also require additional computer programming therefore, the City and Otay Water District will need to reprogram their billing systems to handle individual caps and annual rates-of-return.

Figure 3 summarizes the pros and cons of each of the rate structures reviewed during the course of this study.

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Figure 3
City of Chula Vista
Single Family Rate Structure Alternative

Rate Structure	Description	Advantages	Disadvantages
1. Flat	All users are charged the same rate. Based on the average cost allocation for fixed and variable costs to the customer class. Fixed and variable costs are combined into one flat rate.	This is a relatively simple rate structure to administer. The rate remains fixed and is not adjusted until a general rate increase is required. Provides the most stable source of revenue. Is easy to calculate.	Does not take into account changes in use patterns among customers. Does not account for customer growth or decline in usage.
2. Service Charge With Variable Commodity Rate Without Cap	All users are charged a service charge based on standard meter size (3/4"). Commodity rate is based on a charge per HCF for residential strength sewage and 100% of metered water.	Does not require extensive water use analysis to set the commodity portion of the rate. Customer can see the actual water usage they are being charged for both on the water and sewer side and they are equal. Does not require discussions with customers on winter water use, caps, etc.	Does not exclude irrigation although rate will be lower per HCF than Alternatives 3 and 5 the customer may perceive that they are being charged a sewer fee on their external water use.
3. Service Charge With Variable Commodity Rate With Cap	Similar to #2 except a cap is placed on the quantity of water included in the commodity portion of the rate. This can either be established on a customer class or individual basis.	Allows each customer or customer class to have a cap on the amount of water they are charged sewer usage upon. It achieves a measure of deleting external water usage from the sewer commodity charge. As in Alternative 2 provides for a fixed service charge to provide rate stability and fixed cost recovery. Individual rates are better accepted by the customer.	All customers want to pay the least amount possible for their sewer charges. Opens the door for debates about how the cap was set, what months and readings were used, etc. Require annual analysis of either the customer class or individual user cap. Requires more annual analysis than Alternatives 1 and 2.
4. Variable Commodity Rate No Service Charge Without Cap	Similar to No. 2 except the service charge component is removed.	Allows for the lowest rate possible to the low end user. Since the fixed costs recovered by the service charge in Alternatives 1 and 2 are combined with the commodity costs to determine the rate per HCF, the customer pays for exactly what they use. Is easily calculated.	This has similar disadvantages to Alternative 2 as it does not discount the rate for irrigation and therefore can have the same public perception that they are being charged a sewer rate for external usage. It provides the least revenue stability of the listed alternatives.
5. Variable Commodity Rate No Service Charge With Cap	Similar to 3 except the service charge component is removed.	Same as No. 4.	Although cap is placed to discount external water usage it has the same disadvantages as No. 4.
6. Tiered Commodity Rate	Can be combined with a service charge. Commodity rate is a flat rate established based on ranges, e.g. low, medium, or high water use or individual flat rates.	Has all of the advantages of Alternatives 2 to 4. However the customers rate is set once a year and remains constant until the next year when water usage is evaluated. Provides revenue stability which the others lack. Is probably the most widely used of the alternatives by public agencies.	If a flat rate is set and is only changed once a year based on the water usage formula decided upon by the agency it will not respond as quickly to a customers attempt to lower their water and therefore their sewer bill by conservation measures. If grouped tiers are used customers will challenge the their tier.

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2.4.3.1(a) Preferred Single Family Wastewater Rate Structure

In review of alternatives available to create consumption based rate structure for single family multiple rate structures were reviewed with City staff. In addition, Table 2-4 illustrates the impact on single-family users of either a service charge with a variable commodity charge or a service charge with individual flat rates. The only difference between the two is that the service charge with variable commodity charge is allowed to change based on the actual water usage each billing cycle up to the cap while individual flat rates are set once a year and remain constant during the entire fiscal year. Both rate structures are subject to a 15 HCF cap. That cap represents the 90th percentile of users, which is the level, established by the State Water Resources Control Board of the State of California. It is recommended that the City adopt an “individual flat rate” structure for single-family users. This will allow single-family customers to plan for their sewer user charge billing. The rate is set once a year in July based on the two lowest consecutive water usage readings (monthly billing) or the lowest reading (bi-monthly). The billing formula for an individual flat rate structure is as follows:

Table 2-4
City of Chula Vista
Anticipated Single Family Monthly Rate Comparison

HCF Per Month	# of Users	% of Users	Service Charge Per Month	Commodity Charge Per HCF	Combined	Current	Difference	
0	0	0%	\$6.10	\$1.90				
1	2,148	6%	\$6.10	\$0.00	\$6.10	\$22.37	(\$16.27)	
2	2,145	6%	\$6.10	\$1.90	\$7.99	\$22.37	(\$14.38)	
3	2,340	6%	\$6.10	\$3.79	\$9.89	\$22.37	(\$12.48)	
4	2,694	7%	\$6.10	\$5.69	\$11.78	\$22.37	(\$10.59)	
5	2,913	8%	\$6.10	\$7.58	\$13.68	\$22.37	(\$8.69)	
6	3,033	8%	\$6.10	\$9.48	\$15.58	\$22.37	(\$6.79)	
7	2,839	8%	\$6.10	\$11.38	\$17.47	\$22.37	(\$4.90)	Average
8	2,488	7%	\$6.10	\$13.27	\$19.37	\$22.37	(\$3.00)	
9	2,304	6%	\$6.10	\$15.17	\$21.26	\$22.37	(\$1.11)	Median
10	2,076	6%	\$6.10	\$17.06	\$23.16	\$22.37	\$0.79	
11	1,682	4%	\$6.10	\$18.96	\$25.06	\$22.37	\$2.69	
12	1,471	4%	\$6.10	\$20.86	\$26.95	\$22.37	\$4.58	
13	1,251	3%	\$6.10	\$22.75	\$28.85	\$22.37	\$6.48	
14	1,135	3%	\$6.10	\$24.65	\$30.74	\$22.37	\$8.37	
15	947	3%	\$6.10	\$26.54	\$32.64	\$22.37	\$10.27	
16+	6,220	17%	\$6.10	\$28.44	\$34.54	\$22.37	\$12.17	
	37,687							
Average Winter Water Use:			100%	6.5 HCF	Per account			
Median Winter Water Use:				8 HCF	Per account			

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Single Family Billing Formula

Determine lowest two consecutive months between Nov. - April (Otay Accounts)	or	Determine lowest billing cycle between Nov. - April (Sweetwater Accounts)	X 6	=	Total Annual HCF to Cap	Divide By 12	=	Billable monthly HCF	X	HCF Rate	+	Fixed Service Charge	=	Monthly Sewer Charge
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2.4.3.2 Multi-family Rate Determination

The consultant reviewed additional refinements to the multi-family and mobile home customer rate structures with City staff. Currently the multi-family and mobile home customer classes are charged a flow-based rate with a minimum of \$22.37/Account and maximum of \$22.37/Unit per month.

It is recommended that a service charge should be added to a variable commodity rate structure that is similar to the way non-residential customers are billed. The revised rate structure would consist of a service charge based on the actual water meter size to recover customer service and fixed costs, and a variable commodity rate, which incorporates a rate of return to the sewer. A rate of return should be incorporated in the rate structure, as 100 percent of the water that flows through the water meter does not return to the sewer. The water usage study shows a rate of return of 79 percent multi-family and 84 percent for mobile homes. The service charges for fiscal year 2004 are shown on Table 2-5 for each meter size. The charge for residential strength sewage for fiscal year 2004 is \$1.90 per HCF. The billing formula for multi-family and mobile home users would be as follows:

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Table 2-5
City of Chula Vista
Monthly Service Charge and Commodity Rates ⁽¹⁾

Fixed Service Charge :				
Meter		\$/Month	Meter	\$/Month
5/8"		\$ 6.10	2"	\$ 31.92
3/4"		\$ 6.10	3"	\$ 59.73
1"		\$ 10.07	4"	\$ 99.46
1 1/2"		\$ 20.00	6"	\$ 198.79
Commodity Rate (\$/Per HCF):				
Residential (2)			\$1.90	
Commercial:				
Low			\$1.90	
Medium			\$2.29	
High			\$3.78	
Golf Club House			\$2.29	
Institutional:				
Government			\$1.90	

(1) Variable Commodity Rates (In Addition To Service Charge \$/HCF)

(2) Residential strength sewage includes Single Family Multi Family and Mobile Home Accounts

Multi Family Billing Formula

Total Meter Readings (Monthly)	X	ROR	X	HCF Rate for Res. Sewage	+	Fixed Service Charge	=	Monthly Sewer Charge
---	---	-----	---	--------------------------------	---	----------------------------	---	----------------------------

As stated earlier, this is the most popular method of billing multi-family customers. It is also generally endorsed by the Apartment Owners Association of California as long as rate-of-returns can be adjusted in the case of above average external landscaping and the lack of an irrigation meter. It is also the preferred method by the SWRCB for billing multi-family users. Multi-family users are considered by most utility rate practitioners (and the SWRCB) to be non-residential users as they are a built for profit enterprise as opposed to an owner occupied residence.

Section 2

Wastewater Rate Determination

2.4.3.3 Non-Residential Rate Determination

As with the multi-family and mobile home user rates, we are recommending that the commercial and industrial user rates incorporate a service charge and a rate of return. This would establish a service charge based upon the actual water meter size to recover fixed costs and then add to it a variable commodity rate based not only upon the quantity but also the quality of sewage generated and discharged to the City's sewer system. As discussed earlier non-residential users have been classified into one wastewater-flow-to-water-use category and three BOD and SS concentrations. The water usage study shows a rate of return of 90 percent for commercial users. This produces variable commodity rates for fiscal year as shown in Table 2-5. The fiscal year 2004 service charges are the same as those applied to the single and multi-family users and are also shown on Table 2-5. The billing formula for non-residential users would be as follows:

Commercial Billing Formula

$$\begin{array}{ccccccc} \text{Total} & & & & \text{HCF Rate} & & \\ \text{Meter} & & & & \text{for} & & \\ \text{Readings} & \times & \text{ROR} & \times & \text{Strength} & + & \text{Fixed} & = & \text{Monthly} \\ \text{(Monthly)} & & & & \text{Class} & & \text{Service} & & \text{Sewer} \\ & & & & & & \text{Charge} & & \text{Charge} \end{array}$$

For special or industrial users the following billing formula is used to compute their rates in fiscal year 2004.

Industrial Billing Formula

Flow		BOD		SS		Total Annual Commodity Costs		
	A Capacity in MG		Annual Capacity in Pounds		Annual Capacity in Pounds			
\$1,692.41	X	+	\$0.244025	X	+	\$0.260987	X	=

Once the annual commodity cost are known they can be converted to a per HCF charge by dividing the annual commodity costs by the anticipated HCF for that user adjusted for a rate of return.

Section 3

Recommendations

3.0 Summary of Recommendations

In summary the following recommendations are made regarding the City's rates and rate structures:

1. The City should modify its current rate structure to bring it to industry and federal standards. Calculation of all components of the rate structure for fiscal year 2004 is included in Appendix B.
 - a. The single family rate structure should be modified to include a base monthly service charge as well as a commodity rate established based on each customers two consecutive lowest month winter water usage. In the industry this is termed an "Individual Flat Rate". The billing formula for single family would be as follows:

Single Family Billing Formula

Determine lowest two consecutive months between Nov. - April (Otay Accounts)	or	Determine lowest billing cycle between Nov. - April (Sweetwater Accounts)	X 6	=	Total Annual HCF to Cap	Divide By 12	=	Billable monthly HCF	X	HCF Rate	+	Fixed Service Charge	=	Monthly Sewer Charge
--	----	---	-----	---	-------------------------	--------------	---	----------------------	---	----------	---	----------------------	---	----------------------

- b. The multi-family rate structure should be modified to include a monthly service charge based on the size of their actual water meter, plus a commodity charge based upon a 79 percent rate of return to the sewer for multi-family and 84 percent for mobile homes. The billing formula for multi-family and mobile home users would be as follows:

Section 3

Recommendations

Multi Family Billing Formula

$$\begin{array}{ccccccc} \text{Total} & & & & \text{HCF Rate} & & \text{Fixed} \\ \text{Meter} & & & & \text{for Res.} & & \text{Service} \\ \text{Readings} & \times & \text{ROR} & \times & \text{Sewage} & + & \text{Charge} \\ \text{(Monthly)} & & & & & & \\ & & & & & & \text{Monthly} \\ & & & & & & \text{Sewer} \\ & & & & & & \text{Charge} \end{array}$$

- c. The non-residential rate structure should be modified to include a monthly service charge in addition to a commodity charge, which incorporates BOD as well as suspended solids in determining sewage strengths. The City should continue to group their non-residential users into three sewage strength categories: low, medium, and high. The billing formula for non-residential users would be as follows:

Commercial Billing Formula

$$\begin{array}{ccccccc} \text{Total} & & & & \text{HCF Rate} & & \text{Fixed} \\ \text{Meter} & & & & \text{for} & & \text{Service} \\ \text{Readings} & \times & \text{ROR} & \times & \text{Strength} & + & \text{Charge} \\ \text{(Monthly)} & & & & \text{Class} & & \\ & & & & & & \text{Monthly} \\ & & & & & & \text{Sewer} \\ & & & & & & \text{Charge} \end{array}$$

Industrial Billing Formula

Flow		BOD		SS		Total Annual Commodity Costs
	A Capacity in MG		Annual Capacity in Pounds		Annual Capacity in Pounds	
\$1,692.41	X	+	\$0.244025	X	+	\$0.260987
						=

2. The City should adopt the sewer user monthly rates for the next four years as shown in Table 2-6. Included in Appendix A is a five-year projection of sources and uses of the City's operations and capital funds that assumes the user rates

Section 3

Recommendations

shown in Table 3-1 will be adopted to fund an annual increase of 9 percent per year revenue requirement.

Table 3-1
City of Chula Vista
Proposed Four-Year Rate Case

	Accounts	Proposed			
		FY04	FY05	FY06	FY07
Monthly Service Charges (\$/Month) (1)					
5/8"	39,541	\$ 6.10	\$ 7.20	\$ 7.45	\$ 7.71
3/4"	733	\$ 6.10	\$ 7.20	\$ 7.45	\$ 7.71
1"	459	\$ 10.07	\$ 11.91	\$ 12.33	\$ 12.76
1 1/2"	458	\$ 20.00	\$ 23.68	\$ 24.51	\$ 25.36
2"	13	\$ 31.92	\$ 37.80	\$ 39.12	\$ 40.49
4"	6	\$ 59.73	\$ 70.75	\$ 73.22	\$ 75.79
6"	6	\$ 99.46	\$ 117.82	\$ 121.94	\$ 126.21
8"	2	\$ 198.79	\$ 235.50	\$ 243.74	\$ 252.27
Total Users	41,218				
Variable Commodity Rates (In Addition To Service Charge \$/HCF)					
Residential:					
Single Family	37,687	\$1.90	\$1.99	\$2.15	\$2.34
Multi-Family	2,036	\$1.90	\$1.99	\$2.15	\$2.34
Mobile Homes	12	\$1.90	\$1.99	\$2.15	\$2.34
Commercial:					
Low	1,219	\$1.90	\$1.99	\$2.15	\$2.34
Medium	72	\$2.29	\$2.42	\$2.63	\$2.87
High	110	\$3.78	\$4.02	\$4.40	\$4.85
Golf Club House	3	\$2.29	\$2.42	\$2.63	\$2.87
Government	79	\$1.90	\$1.99	\$2.15	\$2.34
Special User (2)	0	Varies	Varies	Varies	Varies
Total Users	41,218				

(1) All single family users are considered to have a 5/8" water meter for service charge purposes. Multi-Family, mobile home and commercial users service charge is based on actual water meter size.

(2) Special User rates are determined individual based on their sewage strengths

Appendix A
City of Chula Vista
Projected Five-Year Long Range Plan

**City of Chula Vista -- Wastewater Utility
Multi-Year Financial Plan**

	FY03	FY04	FY05	FY06	FY07	FY08
Revenue Requirement Adjustment -->	0%	9%	9%	9%	9%	9%
Sewer Service Fund						
Beginning-of-Year Balance	\$ 5,906,556	\$ 2,213,543	\$ 2,191,368	\$ 2,305,582	\$ 2,405,582	\$ 2,508,582
Revenues						
Sewer Rates	\$ 14,226,294	\$ 19,707,338	\$ 21,634,448	\$ 23,683,923	\$ 26,079,270	\$ 28,502,171
Rate Stabilization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sale of Property	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest and Rents	\$ 338,221	\$ 231,469	\$ 238,413	\$ 245,565	\$ 252,932	\$ 260,520
Industrial Waste Permits	\$ 9,000	\$ 4,675	\$ 4,815	\$ 4,960	\$ 5,108	\$ 5,262
Industrial Waste Compliance Costs	\$ 2,000	\$ 2,060	\$ 2,122	\$ 2,185	\$ 2,251	\$ 2,319
Pump Station Maintenance	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -
Reimb - CIP Projects	\$ 230,000	\$ 236,900	\$ 244,007	\$ 251,327	\$ 258,867	\$ 266,633
District Assessments	\$ 1,000	\$ 51,500	\$ 53,045	\$ 54,636	\$ 56,275	\$ 57,964
Service Charge A/R	\$ 65,000	\$ 66,950	\$ 68,959	\$ 71,027	\$ 73,158	\$ 75,353
Wastewater Engineering	\$ 97,900	\$ 107,052	\$ 110,264	\$ 113,571	\$ 116,979	\$ 120,488
Past Due A/R General	\$ 143,000	\$ 203,571	\$ 209,678	\$ 215,968	\$ 222,448	\$ 229,121
Other Revenues	\$ 131,198	\$ -	\$ -	\$ 100,000	\$ 103,000	\$ 106,090
Transfer from Trunk Sewer Fund	\$ 4,605,000	\$ 6,600,000	\$ 5,900,000	\$ 5,500,000	\$ 4,000,000	\$ 2,500,000
Total Revenues	\$ 19,928,613	\$ 27,211,515	\$ 28,465,750	\$ 30,243,165	\$ 31,170,288	\$ 32,125,920
Expenditures						
29410 - Supplies, Services, Capital	\$ 418,753	\$ 283,449	\$ 154,898	\$ 159,545	\$ 164,331	\$ 169,261
29410-Support Services	\$ 6,709,023	\$ 7,362,471	\$ 7,951,469	\$ 8,326,812	\$ 8,596,445	\$ 8,874,861
29410 -- San Diego Metro	\$ 15,284,281	\$ 18,421,413	\$ 19,043,822	\$ 20,419,420	\$ 21,032,003	\$ 21,662,963
29420 -- Sewer Billing and Collection	\$ 111,983	\$ 115,342	\$ 118,803	\$ 122,367	\$ 126,038	\$ 129,819
29430 -- Sewer Service Risk Management	\$ 62,825	\$ 53,709	\$ 55,320	\$ 56,980	\$ 58,689	\$ 60,450
Sewer Facilities Replacement Fund Revenue Tr	\$ 469,501	\$ 483,586	\$ 498,094	\$ 513,036	\$ 528,428	\$ 544,280
Storm Drain Fund - Revenue Transfer	\$ 565,260	\$ 513,719	\$ 529,131	\$ 545,004	\$ 561,355	\$ 578,195
Total Expenditures	\$ 23,621,626	\$ 27,233,690	\$ 28,351,536	\$ 30,143,165	\$ 31,067,288	\$ 32,019,830
Ending Balance	\$ 2,213,543	\$ 2,191,368	\$ 2,305,582	\$ 2,405,582	\$ 2,508,582	\$ 2,614,672
Annual Surplus/(Deficit)	\$ (3,693,013)	\$ (22,175)	\$ 114,214	\$ 100,000	\$ 103,000	\$ 106,090
Operating Fund/Reserve Benchmarks and Balances						
Operating Reserve (12.5%)	\$ 2,802,000	\$ 3,258,000	\$ 3,394,000	\$ 3,613,000	\$ 3,724,000	\$ 3,838,000
Uncommitted Fund Balance*	\$ 813,543	\$ 427,968	\$ 504,112	\$ 488,639	\$ 590,042	\$ 697,704
<i>*Includes fund balance from Sewer Income Fund</i>						

**City of Chula Vista -- Wastewater Utility
Multi-Year Financial Plan**

	FY03	FY04	FY05	FY06	FY07	FY08
Revenue Requirement Adjustment -->	0%	9%	9%	9%	9%	9%
SEWER FACILITY REPLACEMENT FUND						
Beginning-of-Year Balance	\$ 3,406,773	\$ 3,840,000	\$ 4,187,633	\$ 4,537,942	\$ 4,889,803	\$ 5,239,004
Revenues and Transfers						
Transfer from Operations Fund						
Transfer from Trunk Sewer Fund						
Interest Earnings	\$ 264,100	\$ 192,000	\$ 209,382	\$ 226,897	\$ 244,490	\$ 261,950
Sewer Facility Replacement Fee	\$ 469,501	\$ 483,586	\$ 498,094	\$ 513,036	\$ 528,428	\$ 544,280
Storm Drain Loan Repayment						
Total Revenues and Transfers	\$ 733,601	\$ 675,586	\$ 707,475	\$ 739,934	\$ 772,918	\$ 806,231
Expenditures						
Est. Expenditures	\$ 300,000	\$ 327,953	\$ 357,166	\$ 388,073	\$ 423,717	\$ 459,736
Total Expenditures	\$ 300,000	\$ 327,953	\$ 357,166	\$ 388,073	\$ 423,717	\$ 459,736
Ending Balance	\$ 3,840,000	\$ 4,187,633	\$ 4,537,942	\$ 4,889,803	\$ 5,239,004	\$ 5,585,498
TRUNK SEWER CAPITAL RESERVE						
Beginning-of-Year Balance	\$ 14,975,321	\$ 5,036,000	\$ 4,801,574	\$ 4,431,289	\$ 4,819,113	\$ 5,612,341
Revenues and Transfers						
Sewer Facility Participation Revenues	\$ 6,064,483	\$ 6,113,774	\$ 5,289,637	\$ 5,666,259	\$ 4,552,273	\$ 4,829,506
Interest Earnings	\$ 1,308,830	\$ 251,800	\$ 240,079	\$ 221,564	\$ 240,956	\$ 280,617
Total Revenues and Transfers	\$ 7,373,313	\$ 6,365,574	\$ 5,529,716	\$ 5,887,824	\$ 4,793,228	\$ 5,110,123
Expenditures						
Loan to Salt Creek DIF	\$ 2,524,596					
CIP Expenditures	\$ 10,182,824					
Transfer to Sewer Service Revenue	\$ 4,605,000	\$ 6,600,000	\$ 5,900,000	\$ 5,500,000	\$ 4,000,000	\$ 2,500,000
Total Expenditures	\$ 17,312,420	\$ 6,600,000	\$ 5,900,000	\$ 5,500,000	\$ 4,000,000	\$ 2,500,000
Ending Balance	\$ 5,036,000	\$ 4,801,574	\$ 4,431,289	\$ 4,819,113	\$ 5,612,341	\$ 8,222,464

**City of Chula Vista -- Wastewater Utility
Multi-Year Financial Plan**

	FY03	FY04	FY05	FY06	FY07	FY08
Revenue Requirement Adjustment -->	0%	9%	9%	9%	9%	9%
Special Sewer						
Beginning-of-Year Balance	\$ 503,400	\$ 613,000	\$ 708,348	\$ 807,063	\$ 909,315	\$ 1,015,278
Revenues and Transfers						
Use of Property & Money	\$ 110,398	\$ 110,398	\$ 110,398	\$ 110,398	\$ 110,398	\$ 110,399
Interest Earnings	\$ 44,020	\$ 30,650	\$ 35,417	\$ 40,353	\$ 45,466	\$ 50,764
Total Revenues and Transfers	\$ 154,418	\$ 141,048	\$ 145,815	\$ 150,751	\$ 155,864	\$ 161,163
Expenditures						
Safety Equipment	\$ 16,055	\$ 16,500	\$ 17,000	\$ 17,500	\$ 18,000	\$ 18,500
CIP Expenditures	\$ 28,365	\$ 29,200	\$ 30,100	\$ 31,000	\$ 31,900	\$ 32,900
Total Expenditures	\$ 44,420	\$ 45,700	\$ 47,100	\$ 48,500	\$ 49,900	\$ 51,400
Ending Balance	\$ 613,000	\$ 708,348	\$ 807,063	\$ 909,315	\$ 1,015,278	\$ 1,125,041
Sewer Income						
Beginning-of-Year Balance	\$ 1,305,860	\$ 1,402,000	\$ 1,494,600	\$ 1,592,530	\$ 1,696,057	\$ 1,805,459
Revenues and Transfers						
Business License Tax	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest Earnings	\$ 74,060	\$ 70,100	\$ 74,730	\$ 79,627	\$ 84,803	\$ 90,273
Charge for Services	\$ 21,800	\$ 22,500	\$ 23,200	\$ 23,900	\$ 24,600	\$ 25,300
Total Revenues and Transfers	\$ 95,860	\$ 92,600	\$ 97,930	\$ 103,527	\$ 109,403	\$ 115,573
Expenditures						
Total Expenditures	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ending Balance	\$ 1,402,000	\$ 1,494,600	\$ 1,592,530	\$ 1,696,057	\$ 1,805,459	\$ 1,921,032
Storm Drain						
Beginning-of-Year Balance	\$ 17,419	\$ (243,000)	\$ (580,506)	\$ (928,137)	\$ (1,286,197)	\$ (1,654,999)
Revenues and Transfers						
Transfer from SF Replace. Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest Earnings	\$ 871	\$ -	\$ -	\$ -	\$ -	\$ -
Storm Drain Fees	\$ 565,260	\$ 513,719	\$ 529,131	\$ 545,004	\$ 561,355	\$ 578,195
Total Revenues and Transfers	\$ 566,131	\$ 513,719	\$ 529,131	\$ 545,004	\$ 561,355	\$ 578,195
Expenditures						
Total Expenditures	\$ 826,432	\$ 851,225	\$ 876,762	\$ 903,065	\$ 930,156	\$ 958,061
Repay Loan From SF Replace. Fund		\$ -	\$ -	\$ -	\$ -	\$ -
Total Expenditures	\$ 826,432	\$ 851,225	\$ 876,762	\$ 903,065	\$ 930,156	\$ 958,061
Ending Balance	\$ (243,000)	\$ (580,506)	\$ (928,137)	\$ (1,286,197)	\$ (1,654,999)	\$ (2,034,865)

Appendix B
City of Chula Vista
Rate Structure for Fiscal Year 2004

City of Chula Vista

FY04

Step 1 -- Identification of Users and Pollutant Levels

1 <--- Single Family Option

1 <--- Multi-Family Option

Number Of Accts.	User Group	FLOW					BOD:		SS:	
		(A) Year/Winter Water Consumption Per User Class	(B) Rate of Return	(C) Adjust For Rate of Return	(D) Annual Capacity	(E) Total Flow In MGD	(F) BOD User	(G) Annual Capacity	(H) SS Per User	(I) Annual Capacity
		(HCF)		(HCF)	(MG)	(MGD)	(MG/L)	(LBS.)	(MG/L)	(LBS.)
37,687	RESIDENTIAL:									
2,036	Single Family	5,218,906	Applied	5,218,906	3903.742	10.69518	200	6,511,227.773	200	6,511,227.7
12	Multi-Family	1,577,459	79%	1,246,193	932.152	2.55384	200	1,554,778.908	200	1,554,778.9
	Mobile Homes	147,456	84%	123,863	92.650	0.25383	200	154,534.379	200	154,534.3
39,735	Subtotal- Residential	6,943,822		6,588,962	4928.544	13.50286		8,220,541.060		8,220,541.0
1,215	COMMERCIAL:									
72	Low	704,857	90.00%	634,372	474.510	1.30003	200	791,456.607	200	791,456.6
110	Medium	869,938	90.00%	782,944	585.642	1.60450	300	1,465,228.804	350	1,709,433.6
79	High	145,587	90.00%	131,029	98.009	0.26852	900	735,634.336	700	572,160.0
3	Government	149,515	90.00%	134,564	100.654	0.27576	200	167,884.894	200	167,884.8
	Golf Courses Club Houses	5,598	90.00%	5,038	3.769	0.01032	300	9,428.661	350	11,000.1
				0	0.000	0.00000		0.000		0.0
				0	0.000	0.00000		0.000		0.0
1,479	Subtotal	1,875,496		1,687,946	1262.584	3.45913		3,169,633.302		3,251,935.2
4	Special Users	47,056	Applied	47,056	35.198	0.09643		177,316.549		182,344.4
41,218	Subtotal -- Chula Vista Users	8,866,374		8,323,965	6,226.326	17.05843		11,567,490.911		11,654,820.7
	Contract	0	Applied	0	0.000	0.00000		0.000		0.0
41,218	TOTAL	8,866,374		8,323,965	6,226.326	17.05843		11,567,490.911		11,654,820.7

Model Average BOD/SS in mg/l-->

223

224

2002 Flow/BOD/SS*-->

15.682

MGD

209

182

% Difference

8%

6%

19%

City of Chula Vista

Special User Rate Calculation

No. Accts.	Account #	Name	Mtr.	Annual	ROR	Adjust	Flow		BOD		TSS		Commodity Rate Determination				
							Annual Capacity (MG)	Total Flow (MGD)	BOD User	Annual Capacity	TSS Per User	Annual Capacity	Fund: O&MT/ Flow	Fund: O&MT/ BOD	Fund: O&MT/ TSS	Total	Per HCF
													\$1,692.41	\$0.244025	\$0.260987		
1		Duke Energy	2"	4,466.00	100%	4,466	3.341	0.0092	300	8,357.827	350	9,750.798	\$5,653.61	\$2,039.52	\$2,544.84	\$10,237.96	\$2.29
1		South Bay Boat Yard	2"	3,680.00	100%	3,680	2.753	0.0075	300	6,886.879	350	8,034.692	\$4,658.59	\$1,680.57	\$2,096.95	\$8,436.12	\$2.29
1		Prudential Overall Sup.	2"	38,670.00	100%	38,670	28.925	0.0792	670	161,622.699	680	164,034.979	\$48,953.20	\$39,439.96	\$42,811.07	\$131,204.23	\$3.39
1		SDG&E	5/8"	240.00	100%	240	0.180	0.0005	300	449.144	350	524.002	\$303.82	\$109.60	\$136.76	\$550.18	\$2.29
4			0	47,056.00		47,056	35.198	0.096		177,316.549		182,344.470	\$59,569.23	\$43,269.65	\$47,589.62	\$150,428.49	

City of Chula Vista

FY04

Step 2 -- Determination of Unit Costs

Cost Category	Parameter Allocation Percentages	Annual Cost Allocated To Each Parameter	Total Quantities	Unit Cost For Each Parameter
1. Operations & Maintenance - Fixed Costs				
Less Other Revenues				
Per Fixed Cost Billing Unit	100%	\$3,305,330	45,181.02	\$73.16
2. Operations & Maintenance - Collection System (Semi-Variable & Variable)	\$4,234,959			
Flow (MG)	100%	\$4,234,958.71	6,226.326	\$680.17
BOD (LBS.)	0%	\$0.00		
SS (LBS.)	0%	\$0.00		
3. Treatment	\$11,653,330			
Flow (MG)	51.8%	\$6,036,424.87	6,226.326	\$969.50
BOD (LBS.)	23.2%	\$2,703,572.53	11,567,490.91	\$00.233722
SS (LBS.)	25.0%	\$2,913,332.47	11,654,820.78	\$00.249968
4. NPDES Costs	\$513,719			
Flow (MG)	51.8%	\$266,106.44	6,226.326	\$42.74
BOD (LBS.)	23.2%	\$119,182.81	11,567,490.91	\$00.010303
SS (LBS.)	25.0%	\$128,429.75	11,654,820.779	\$00.011019

Total Revenue Requirement For Rates: \$19,707,338

Check Total: \$19,707,338

Special User Calculator*

Flow	1,692.409	3.341	\$5,653.61
BOD	0.244025	8,357.827	\$2,039.52
SS	0.260987	9,750.798	\$2,544.84
		Subtotal	\$10,237.96
		Divide By	4,466.000
		Total Per HCF	\$2.29

*This calculator determines commodity charge. To determine full rate the service charge based on the size of their water meter must be added.

City of Chula Vista

Summary of Sewer Service Customers Potential Rate Impacts Based on Fixed Cost Allocation

Step 2A -- Service Charge Calculation

User Group	3/4"	5/8"***	1"	1-1/2"	2"	3"	4"	6"	8"	Total
<u>Number of Meters</u>										
SWA & Mont. Residential	0	15,666	0	0	0	0	0			15,666
Otay Residential	0	22,015	0	0	0	0	0			22,015
SWA & Mont. Multi-Family (MF08)	0	821	313	139	111	0	0			1,384
Multi-Family (MF09)	0	90	30	4	1	0	0			125
Mobile Homes (MH06)	0	0	4	8	0	0	0			12
SWA & Mont. Business (CL03)	0	711	119	87	67	0	0			984
Business (CM03)	0	22	7	9	10	0	0			48
Business (CH03)	0	42	12	13	16	0	0			83
Otay Multi-Family	0	110	169	120	108	8	6	4	2	527
Industrial (IM04)	0	1	0	0	3	0	0			4
Industrial (IH04)	0	0	0	0	0	0	0	0	0	0
Government (GL05)	0	8	10	13	48	0	0			79
Otay Business Low	0	45	55	44	80	5	0	2	0	231
Otay Business Medium	0	3	8	9	4					24
Otay Business High	0	2	5	11	9					27
Golf Courses (GM07)	0	0	1	1	1	0	0			3
Golf Courses (GH07)										0
Res. w/Fire Protection (RF17)	0	5	0	0	0	0	0			5
Multi w/Fire Protection (MF19)	0	0	0	1	0	0	0			1
Total	0	39,541	733	459	458	13	6	6	2	41,218
Scaling Factor-->		66.67%								41,218
Hydraulic Cap. Factor	1.00	1.00	1.67	3.33	5.33	10.00	16.67	33.33	53.33	
*Includes Master-Metered Single Family & Manufactured homes										
**Otay meter size is 3/4" versus Sweetwater 5/8" meter size										
<u>Number of Equivalent (Hydraulic) Meters</u>										
SWA & Mont. Residential	0	15,666	0	0	0	0	0	0	0	15,666
Otay Residential	0	22,015	0	0	0	0	0	0	0	22,015
SWA & Mont. Multi-Family (MF08)	0	821	522	463	592	0	0	0	0	2,398
Multi-Family (MF09)	0	90	50	13	5	0	0	0	0	159
Mobile Homes (MH06)	0	0	7	27	0	0	0	0	0	33
SWA & Mont. Business (CL03)	0	711	198	290	357	0	0	0	0	1,557
Business (CM03)	0	22	12	30	53	0	0	0	0	117
Business (CH03)	0	42	20	43	85	0	0	0	0	191
Otay Multi-Family	0	110	282	400	576	80	100	133	107	1,788
Industrial (IM04)	0	1	0	0	16	0	0	0	0	17
Industrial (IH04)	0	0	0	0	0	0	0	0	0	0
Government (GL05)	0	8	17	43	256	0	0	0	0	324
Otay Business Low	0	45	92	147	427	50	0	67	0	827
Otay Business Medium	0	3	13	30	21	0	0	0	0	68
Otay Business High	0	2	8	37	48	0	0	0	0	95
Golf Courses (GM07)	0	0	2	3	5	0	0	0	0	10
Golf Courses (GH07)	0	0	0	0	0	0	0	0	0	0
Res. w/Fire Protection (RF17)	0	5	0	0	0	0	0	0	0	5
Multi w/Fire Protection (MF19)	0	0	0	3	0	0	0	0	0	3
Total	0	39,541	1,222	1,530	2,443	130	100	200	107	45,272
										45,272

Determination of Impact on Monthly Service Charge

	3/4"	5/8"***	1"	1-1/2"	2"	3"	4"	6"	8"	Total
<u>Customer/Meter Data</u>										
Number of Customers	0	39,541	733	459	458	13	6	6	2	41,218
No. Of Equivalent Meters	0	39,541	1,222	1,530	2,443	130	100	200	107	45,272
Hydraulic Cap. Factor	1.00	1.00	1.67	3.33	5.33	10.00	16.67	33.33	53.33	
Service Charge:										
Customer Costs	\$0.14	\$0.14	\$0.14	\$0.14	\$0.14	\$0.14	\$0.14	\$0.14	\$0.14	
Capacity Costs	\$5.96	\$5.96	\$9.93	\$19.87	\$31.78	\$59.60	\$99.33	\$198.65	\$317.85	
Total Monthly	\$6.10	\$6.10	\$10.07	\$20.00	\$31.92	\$59.73	\$99.46	\$198.79	\$317.98	
Total Bi-Monthly	\$12.19	\$12.19	\$20.14	\$40.00	\$63.84	\$119.47	\$198.93	\$397.58	\$635.97	
Customer Equiv. Factor	1.00	1.00	1.65	3.28	5.24	9.80	16.32	32.61	52.16	
<u>Summary of Fixed Costs</u>										
Customer Costs	\$67,675									
Capacity Costs	\$3,237,655									
	<u>\$3,305,330</u>									
<u>Number of Equivalent Customers</u>										
SWA & Mont. Residential	0	15,666	0	0	0	0	0	0	0	15,666
Otay Residential	0	22,015	0	0	0	0	0	0	0	22,015
SWA & Mont. Multi-Family (MF08)	0	821	517	456	581	0	0	0	0	2,375
Multi-Family (MF09)	0	90	50	13	5	0	0	0	0	158
Mobile Homes (MH06)	0	0	7	26	0	0	0	0	0	33
SWA & Mont. Business (CL03)	0	711	197	285	351	0	0	0	0	1,544
Business (CM03)	0	22	12	30	52	0	0	0	0	115
Business (CH03)	0	42	20	43	84	0	0	0	0	188
Otay Multi-Family	0	110	279	394	565	78	98	130	104	1,759
Industrial (IM04)	0	1	0	0	16	0	0	0	0	17
Industrial (IH04)	0	0	0	0	0	0	0	0	0	0
Government (GL05)	0	8	17	43	251	0	0	0	0	319
Otay Business Low	0	45	91	144	419	49	0	65	0	813
Otay Business Medium	0	3	13	30	21	0	0	0	0	67
Otay Business High	0	2	8	36	47	0	0	0	0	93
Golf Courses (GM07)	0	0	2	3	5	0	0	0	0	10
Golf Courses (GH07)	0	0	0	0	0	0	0	0	0	0
Res. w/Fire Protection (RF17)	0	5	0	0	0	0	0	0	0	5
Multi w/Fire Protection (MF19)	0	0	0	3	0	0	0	0	0	3
	0	39,541	1,211	1,506	2,398	127	98	196	104	45,181
	45,181									

City of Chula Vista

FY04

Step 3 -- Sewer User Rate Calculation By Fund and Cost

SUMMARY OF FUND COSTS:												
Number Of Users	User Group	Fixed O&M		Collection System O&M Costs:			Treatment Costs:			NPDES		
		Number Of Units	Fund: Fixed O&M Cost	Fund: FLOW/CAP.	Fund: BOD/O&M	Fund: SS/CAPITAL	Fund: FLOW	Fund: BOD	Fund: SS	Fund: FLOW	Fund: BOD	Fund: SS
			Unit Cost = \$73.16	Unit Cost = \$680.17	Unit Cost = \$0.00	Unit Cost = \$0.00	Unit Cost = \$969.50	Unit Cost = \$0.23	Unit Cost = \$0.25	Unit Cost = \$42.74	Unit Cost = \$00.010303	Unit Cost = \$0.00
37,687	Single Family	37,686.00	\$2,757,013.36	\$2,655,207.46	\$0.00	\$0.00	\$3,784,679.24	\$1,521,814.60	\$1,627,598.71	\$166,841.72	\$67,086.84	
2,036	Multi-Family	4,295.81	\$314,270.56	\$634,021.83	\$0.00	\$0.00	\$903,721.95	\$363,385.42	\$388,645.00	\$39,839.18	\$16,019.28	
12	Mobile Homes	32.85	\$2,403.56	\$63,017.43	\$0.00	\$0.00	\$89,823.77	\$36,118.02	\$38,628.65	\$3,959.74	\$1,592.21	
0				\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
39,735	Subtotal- Residential	42,014.66	\$3,073,687.47	\$3,352,246.72	\$0.00	\$0.00	\$4,778,224.97	\$1,921,318.04	\$2,054,872.37	\$210,640.65	\$84,698.33	
1,215	Low	2,357.11	\$172,440.43	\$322,747.35	\$0.00	\$0.00	\$460,037.57	\$184,980.51	\$197,838.84	\$20,280.04	\$8,154.58	
72	Medium	182.14	\$13,324.77	\$398,336.18	\$0.00	\$0.00	\$567,780.38	\$342,455.63	\$427,303.73	\$25,029.72	\$15,096.63	
110	High	281.72	\$20,610.23	\$66,663.03	\$0.00	\$0.00	\$95,020.14	\$171,933.64	\$143,021.71	\$4,188.82	\$7,579.43	
79	Government	318.50	\$23,300.77	\$68,461.62	\$0.00	\$0.00	\$97,583.82	\$39,238.33	\$41,965.85	\$4,301.83	\$1,729.76	
3	Golf Courses Club Houses	10.17	\$743.92	\$2,563.27	\$0.00	\$0.00	\$3,653.63	\$2,203.68	\$2,749.67	\$161.06	\$97.15	
	Fixed -- All Commercial	3,149.64	\$230,420.12									
1,479	Subtotal-Commercial	3,149.64	\$230,420.12	\$858,771.45	\$0.00	\$0.00	\$1,224,075.54	\$740,811.78	\$812,879.81	\$53,961.47	\$32,657.54	
4	Special Users	17	\$1,222.33	\$23,940.54	\$0.00	\$0.00	\$34,124.36	\$41,442.71	\$45,580.29	\$1,504.32	\$1,826.94	
41,218	Total Chula Vista	45,181.02	\$3,305,329.92	\$4,234,958.71	\$0.00	\$0.00	\$6,036,424.87	\$2,703,572.53	\$2,913,332.47	\$266,106.44	\$119,182.81	
Check Total-->									\$11,653,329.87	Check Total-->	\$513,719	Ch

City of Chula Vista

FY04

Step 4 -- Final Sewer User Rate Determination

Number Of Users/ Living Units	User Group	(A) Yearly/ Winter Water Consumption Per User Class	(B) Rate of Return	(C) Adjust For Rate of Return	(D) BOD Per User	(E) SS Per User	Average Monthly Fixed Fee (5/8")	O&M Variable Rate Per HCF	Yearly Revenue Fixed Fee	Yearly Revenue Variable
	RESIDENTIAL:	(HCF)		(HCF)	(MG/L)	(MG/L)				
37,687	Single Family	5,218,906	Applied	5,218,906	200	200	\$6.10	\$1.90	\$2,757,013.36	\$9,89
2,036	Multi-Family	1,577,459	79%	1,246,193	200	200	\$6.10	\$1.90	\$314,270.56	\$2,36
12	Mobile Homes	147,456	84%	123,863	200	200	\$6.10	\$1.90	\$2,403.56	\$23
39,735	Subtotal- Residential	6,943,822		6,588,962					\$3,073,687.47	\$12,49
	NON RESIDENTIAL:									
1,215	Low	704,857	90%	634,372	200	200	\$6.10	\$1.90	\$172,440.43	\$1,20
72	Medium	869,938	90%	782,944	300	350	\$6.10	\$2.29	\$13,324.77	\$1,79
110	High	145,587	90%	131,029	900	700	\$6.10	\$3.78	\$20,610.23	\$49
79	Government	149,515	90%	134,564	200	200	\$6.10	\$1.90	\$23,300.77	\$25
3	Golf Courses Club Houses	5,598	90%	5,038	300	350	\$6.10	\$2.29	\$743.92	\$1
4	Special Users	47,056	Applied	47,056	0	0	\$6.10	N/A	\$1,222.33	\$15
1,483	Subtotal Non-Residential	1,922,552		1,735,002					\$231,642.45	\$3,90
41,218	TOTAL ALL USERS:	8,866,374		8,323,965					\$3,305,329.92	\$16,40
								Budget-->	\$3,305,329.92	\$16,40
							Over/(Under) Budget		\$0.00	\$0

Appendix C
City of Chula Vista
Budget Summary and Cost Allocation

City of Chula Vista
Budget Summary and Cost Allocation

		Annual Budget Summary					3		Cost Allocation							
Account No.	Description	FY03	FY04	FY05	FY06	FY07	Model	Customer	Capacity	Collect	Stormwater Management	Treatment	Shared	Utilities		
			3%	3%	3%	3%		(Fixed)	(Fixed)	(Variable)	(Variable)	(Variable)	(Variable)	(Variable)		
								(1)	(2)	(4)	(5)	(6)	(7)	(8)		
16355 -- Wastewater Engineering																
	Salaries	\$ 307,868	\$ 317,104	\$ 326,617	\$ 336,416	\$ 346,508	\$317,104	4	\$ -	\$ -	\$ 317,104	\$ -	\$ -	\$ -	\$ -	
	Benefits	\$ 83,427	\$ 85,930	\$ 88,508	\$ 91,163	\$ 93,898	\$85,930	4	\$ -	\$ -	\$ 85,930	\$ -	\$ -	\$ -	\$ -	
	Subtotal	\$ 391,295	\$ 403,034	\$ 415,125	\$ 427,579	\$ 440,406	\$403,034		\$ -	\$ -	\$ 403,034	\$ -	\$ -	\$ -	\$ -	
Check Total-->									\$ 403,034							
16751 -- Wastewater Operations Administration																
	Salaries	\$ 78,268	\$ 80,616	\$ 83,035	\$ 85,526	\$ 88,091	\$80,616	4	\$ -	\$ -	\$ 80,616	\$ -	\$ -	\$ -	\$ -	
	Benefits	\$ 19,979	\$ 20,578	\$ 21,196	\$ 21,832	\$ 22,487	\$20,578	4	\$ -	\$ -	\$ 20,578	\$ -	\$ -	\$ -	\$ -	
	Membership/Dues	\$ 280	\$ 288	\$ 297	\$ 306	\$ 315	\$288	2	\$ -	\$ 288	\$ -	\$ -	\$ -	\$ -	\$ -	
	Training	\$ 1,175	\$ 1,210	\$ 1,247	\$ 1,284	\$ 1,322	\$1,210	2	\$ -	\$ 1,210	\$ -	\$ -	\$ -	\$ -	\$ -	
	Phone Service	\$ 590	\$ 608	\$ 626	\$ 645	\$ 664	\$608	1	\$ 608	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Fleet Maint. Charges	\$ 2,844	\$ 2,929	\$ 3,017	\$ 3,108	\$ 3,201	\$2,929	2	\$ -	\$ 2,929	\$ -	\$ -	\$ -	\$ -	\$ -	
	Equip. Replace. Charge	\$ 2,601	\$ 2,679	\$ 2,759	\$ 2,842	\$ 2,927	\$2,679	2	\$ -	\$ 2,679	\$ -	\$ -	\$ -	\$ -	\$ -	
	Wearing Apparel	\$ 125	\$ 129	\$ 133	\$ 137	\$ 141	\$129	2	\$ -	\$ 129	\$ -	\$ -	\$ -	\$ -	\$ -	
		\$ 105,862	\$ 109,038	\$ 112,309	\$ 115,678	\$ 119,149	\$ 109,038		\$ 608	\$ 7,236	\$ 101,194	\$ -	\$ -	\$ -	\$ -	
Check Total-->									\$ 109,038							
16753 -- Wastewater Maintenance																
	Salaries	\$ 1,498,887	\$ 1,543,854	\$ 1,590,169	\$ 1,637,874	\$ 1,687,011	\$1,543,854	4	\$ -	\$ -	\$ 1,543,854	\$ -	\$ -	\$ -	\$ -	
	Overtime-Regular	\$ 29,008	\$ 29,878	\$ 30,775	\$ 31,698	\$ 32,649	\$29,878	4	\$ -	\$ -	\$ 29,878	\$ -	\$ -	\$ -	\$ -	
	Overtime-Callback	\$ 16,913	\$ 17,420	\$ 17,943	\$ 18,481	\$ 19,036	\$17,420	4	\$ -	\$ -	\$ 17,420	\$ -	\$ -	\$ -	\$ -	
	Differential -- Bilingual	\$ 22,769	\$ 23,452	\$ 24,156	\$ 24,880	\$ 25,627	\$23,452	4	\$ -	\$ -	\$ 23,452	\$ -	\$ -	\$ -	\$ -	
	Standby	\$ 10,400	\$ 10,712	\$ 11,033	\$ 11,364	\$ 11,705	\$10,712	4	\$ -	\$ -	\$ 10,712	\$ -	\$ -	\$ -	\$ -	
	Benefits	\$ 513,137	\$ 528,531	\$ 544,387	\$ 560,719	\$ 577,540	\$528,531	4	\$ -	\$ -	\$ 528,531	\$ -	\$ -	\$ -	\$ -	
	Other Professional Service	\$ 35,366	\$ 36,427	\$ 37,520	\$ 38,645	\$ 39,805	\$36,427	4	\$ -	\$ -	\$ 36,427	\$ -	\$ -	\$ -	\$ -	
	Laundry & Cleaning	\$ 7,425	\$ 7,648	\$ 7,877	\$ 8,113	\$ 8,357	\$7,648	4	\$ -	\$ -	\$ 7,648	\$ -	\$ -	\$ -	\$ -	
	Specialized Services	\$ 448	\$ 461	\$ 475	\$ 490	\$ 504	\$461	4	\$ -	\$ -	\$ 461	\$ -	\$ -	\$ -	\$ -	
	Other Ag.Permits & Fees	\$ 666	\$ 686	\$ 707	\$ 728	\$ 750	\$686	2	\$ -	\$ 686	\$ -	\$ -	\$ -	\$ -	\$ -	
	Photography & Blueprint	\$ 2,702	\$ 2,783	\$ 2,867	\$ 2,953	\$ 3,041	\$2,783	4	\$ -	\$ -	\$ 2,783	\$ -	\$ -	\$ -	\$ -	
	Training	\$ 1,025	\$ 1,056	\$ 1,087	\$ 1,120	\$ 1,154	\$1,056	4	\$ -	\$ -	\$ 1,056	\$ -	\$ -	\$ -	\$ -	
	Phone Service	\$ 3,503	\$ 3,608	\$ 3,716	\$ 3,828	\$ 3,943	\$3,608	1	\$ 3,608	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Trash Collection & Disp.	\$ -	\$ -	\$ -	\$ -	\$ -	\$0	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Water	\$ 16,903	\$ 17,410	\$ 17,932	\$ 18,470	\$ 19,024	\$17,410	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 17,410	
	Maint-Comm. Equipment	\$ 350	\$ 361	\$ 371	\$ 382	\$ 394	\$361	4	\$ -	\$ -	\$ 361	\$ -	\$ -	\$ -	\$ -	
	Maint-Other. Equipment	\$ 255	\$ 263	\$ 271	\$ 279	\$ 287	\$263	4	\$ -	\$ -	\$ 263	\$ -	\$ -	\$ -	\$ -	
	Fleet Maint. Charges	\$ 212,849	\$ 219,234	\$ 225,812	\$ 232,586	\$ 239,563	\$219,234	4	\$ -	\$ -	\$ 219,234	\$ -	\$ -	\$ -	\$ -	
	Equipment Replcmet Chgs	\$ 310,944	\$ 320,272	\$ 329,880	\$ 339,777	\$ 349,970	\$320,272	4	\$ -	\$ -	\$ 320,272	\$ -	\$ -	\$ -	\$ -	
	Rental-Other Equip.	\$ 2,280	\$ 2,348	\$ 2,419	\$ 2,491	\$ 2,566	\$2,348	4	\$ -	\$ -	\$ 2,348	\$ -	\$ -	\$ -	\$ -	
	Office Supplies	\$ 5,855	\$ 6,031	\$ 6,212	\$ 6,398	\$ 6,590	\$6,031	4	\$ -	\$ -	\$ 6,031	\$ -	\$ -	\$ -	\$ -	
	Medical Supplies	\$ 350	\$ 361	\$ 371	\$ 382	\$ 394	\$361	4	\$ -	\$ -	\$ 361	\$ -	\$ -	\$ -	\$ -	

Account No.	Description	Annual Budget Summary					3	Cost Allocation							
		FY03	FY04	FY05	FY06	FY07	Model	Customer	Capacity	Stormwater					
										Collect	Management	Treatment	Shared	Utilities	
			3%	3%	3%	3%		(Fixed)	(Fixed)	(Variable)	(Variable)	(Variable)	(Variable)	(Variable)	
	Traffic Control Sup.	\$ 6,907	\$ 7,114	\$ 7,328	\$ 7,547	\$ 7,774	\$7,114	4	\$ -	\$ -	\$ 7,114	\$ -	\$ -	\$ -	\$ -
	Books, etc.	\$ 141	\$ 145	\$ 150	\$ 154	\$ 159	\$145	4	\$ -	\$ -	\$ 145	\$ -	\$ -	\$ -	\$ -
	Small Tools	\$ 7,719	\$ 7,951	\$ 8,189	\$ 8,435	\$ 8,688	\$7,951	4	\$ -	\$ -	\$ 7,951	\$ -	\$ -	\$ -	\$ -
	Wearing Apparl	\$ 12,256	\$ 12,624	\$ 13,002	\$ 13,392	\$ 13,794	\$12,624	4	\$ -	\$ -	\$ 12,624	\$ -	\$ -	\$ -	\$ -
	Other Commodities	\$ 9,884	\$ 10,181	\$ 10,486	\$ 10,801	\$ 11,125	\$10,181	4	\$ -	\$ -	\$ 10,181	\$ -	\$ -	\$ -	\$ -
	Construction Materials	\$ 116,005	\$ 119,485	\$ 123,070	\$ 126,762	\$ 130,565	\$119,485	4	\$ -	\$ -	\$ 119,485	\$ -	\$ -	\$ -	\$ -
	Matls to Main-Other Equip	\$ 22,899	\$ 23,586	\$ 24,294	\$ 25,022	\$ 25,773	\$23,586	4	\$ -	\$ -	\$ 23,586	\$ -	\$ -	\$ -	\$ -
	Computer Equipment	\$ 493	\$ 508	\$ 523	\$ 539	\$ 555	\$508	4	\$ -	\$ -	\$ 508	\$ -	\$ -	\$ -	\$ -
	Automotive Equipment	\$ -	\$ 167,000	\$ 39,000	\$ 40,170	\$ 41,375	\$167,000	4	\$ -	\$ -	\$ 167,000	\$ -	\$ -	\$ -	\$ -
		\$ 2,868,339	\$ 3,121,389	\$ 3,082,021	\$ 3,174,481	\$ 3,269,716	\$ 3,121,389	\$ 3,608	\$ 686	\$ 3,099,685	\$ -	\$ -	\$ -	\$ 17,410	
		Check Total-->								\$ 3,121,389					

16755 - Lift Station/Pool Maint.

	Salaries	\$ 247,373	\$ 254,794	\$ 262,438	\$ 270,311	\$ 278,420	\$254,794	4	\$ -	\$ -	\$ 254,794	\$ -	\$ -	\$ -	\$ -
	Overtime Regular	\$ 6,744	\$ 6,946	\$ 7,155	\$ 7,369	\$ 7,590	\$6,946	4	\$ -	\$ -	\$ 6,946	\$ -	\$ -	\$ -	\$ -
	Standby	\$ 4,959	\$ 5,108	\$ 5,261	\$ 5,419	\$ 5,581	\$5,108	4	\$ -	\$ -	\$ 5,108	\$ -	\$ -	\$ -	\$ -
	Benefits	\$ 67,963	\$ 70,002	\$ 72,102	\$ 74,265	\$ 76,493	\$70,002	4	\$ -	\$ -	\$ 70,002	\$ -	\$ -	\$ -	\$ -
	Other Contrac. Svs.	\$ 15,140	\$ 15,594	\$ 16,062	\$ 16,544	\$ 17,040	\$15,594	2	\$ -	\$ 15,594	\$ -	\$ -	\$ -	\$ -	\$ -
	Laundry & Cleaning	\$ 1,170	\$ 1,205	\$ 1,241	\$ 1,278	\$ 1,317	\$1,205	4	\$ -	\$ -	\$ 1,205	\$ -	\$ -	\$ -	\$ -
	Specialized Svs.	\$ 314	\$ 323	\$ 333	\$ 343	\$ 353	\$323	2	\$ -	\$ 323	\$ -	\$ -	\$ -	\$ -	\$ -
	Membership/Dues	\$ 85	\$ 88	\$ 90	\$ 93	\$ 96	\$88	4	\$ -	\$ -	\$ 88	\$ -	\$ -	\$ -	\$ -
	Training	\$ 3,300	\$ 3,399	\$ 3,501	\$ 3,606	\$ 3,714	\$3,399	4	\$ -	\$ -	\$ 3,399	\$ -	\$ -	\$ -	\$ -
	Phone Service	\$ 7,848	\$ 8,083	\$ 8,326	\$ 8,576	\$ 8,833	\$8,083	1	\$ 8,083	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Gas & Electric	\$ 36,618	\$ 37,717	\$ 38,848	\$ 40,013	\$ 41,214	\$37,717	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 37,717
	Water	\$ 3,477	\$ 3,581	\$ 3,689	\$ 3,799	\$ 3,913	\$3,581	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,581
	Maint-Other Equip.	\$ 155	\$ 160	\$ 164	\$ 169	\$ 174	\$160	2	\$ -	\$ 160	\$ -	\$ -	\$ -	\$ -	\$ -
	Fleet Maint. Charges	\$ 33,515	\$ 34,520	\$ 35,556	\$ 36,623	\$ 37,721	\$34,520	2	\$ -	\$ 34,520	\$ -	\$ -	\$ -	\$ -	\$ -
	Equipt. Replace. Chgs.	\$ 18,067	\$ 18,609	\$ 19,167	\$ 19,742	\$ 20,335	\$18,609	2	\$ -	\$ 18,609	\$ -	\$ -	\$ -	\$ -	\$ -
	Rental Other Equip.	\$ 180	\$ 185	\$ 191	\$ 197	\$ 203	\$185	2	\$ -	\$ 185	\$ -	\$ -	\$ -	\$ -	\$ -
	Office Supplies	\$ -	\$ -	\$ -	\$ -	\$ -	\$0	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Chemicals	\$ 12,523	\$ 12,899	\$ 13,286	\$ 13,684	\$ 14,095	\$12,899	4	\$ -	\$ -	\$ 12,899	\$ -	\$ -	\$ -	\$ -
	Small Toolles	\$ 900	\$ 927	\$ 955	\$ 983	\$ 1,013	\$927	4	\$ -	\$ -	\$ 927	\$ -	\$ -	\$ -	\$ -
	Wearing Apparel	\$ 2,735	\$ 2,817	\$ 2,902	\$ 2,989	\$ 3,078	\$2,817	4	\$ -	\$ -	\$ 2,817	\$ -	\$ -	\$ -	\$ -
	Other Commodities	\$ 5,240	\$ 5,397	\$ 5,559	\$ 5,726	\$ 5,898	\$5,397	4	\$ -	\$ -	\$ 5,397	\$ -	\$ -	\$ -	\$ -
	Matls to Main-Other Equip	\$ 12,755	\$ 13,138	\$ 13,532	\$ 13,938	\$ 14,356	\$13,138	4	\$ -	\$ -	\$ 13,138	\$ -	\$ -	\$ -	\$ -
		\$ -	\$ -	\$ -	\$ -	\$ -	\$0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
		\$ 481,061	\$ 495,493	\$ 510,358	\$ 525,668	\$ 541,438	\$ 495,493		\$ 8,083	\$ 69,392	\$ 376,719	\$ -	\$ -	\$ -	\$ 41,298
		Check Total-->								\$ 495,493					

29410 -- Sewer Service Expenditures

	Other Professional Svs.	\$ 8,612	\$ 8,870	\$ 9,136	\$ 9,411	\$ 9,693	\$8,870	2	\$ -	\$ 8,870	\$ -	\$ -	\$ -	\$ -	\$ -
	Metro. Cap. Fee	\$ 219,892	\$ -	\$ -	\$ -	\$ -	\$0	2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Metro. O&M/CIP*	\$15,064,389	\$ 18,421,413	\$19,043,822	\$20,419,420	\$21,032,003	\$18,421,413	6	\$ -	\$ -	\$ -	\$18,421,413	\$ -	\$ -	\$ -
	Metro. Water Park	\$ -	\$ -	\$ -	\$ -	\$ -	\$0	6	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Specialized Services	\$ 1,120	\$ 1,154	\$ 1,188	\$ 1,224	\$ 1,261	\$1,154	2	\$ -	\$ 1,154	\$ -	\$ -	\$ -	\$ -	\$ -

		Annual Budget Summary					3	Cost Allocation								
Account No.	Description	FY03	FY04	FY05	FY06	FY07	Model	Customer	Capacity	Collect	Stormwater Management	Treatment	Shared	Utilities		
			3%	3%	3%	3%		(Fixed)	(Fixed)	(Variable)	(Variable)	(Variable)	(Variable)	(Variable)		
	Printing & Binding	\$ 2,000	\$ 2,060	\$ 2,122	\$ 2,185	\$ 2,251	\$2,060	6	\$ -	\$ -	\$ -	\$ -	\$ 2,060	\$ -	\$ -	
	Postage	\$ 5,356	\$ 5,517	\$ 5,682	\$ 5,853	\$ 6,028	\$5,517	1	\$ 5,517	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Membership/Dues	\$ 24,000	\$ 24,720	\$ 25,462	\$ 26,225	\$ 27,012	\$24,720	6	\$ -	\$ -	\$ -	\$ -	\$ 24,720	\$ -	\$ -	
	Training	\$ 5,601	\$ 5,769	\$ 5,942	\$ 6,120	\$ 6,304	\$5,769	6	\$ -	\$ -	\$ -	\$ -	\$ 5,769	\$ -	\$ -	
	Phone Svs.	\$ 1,424	\$ 1,467	\$ 1,511	\$ 1,556	\$ 1,603	\$1,467	1	\$ 1,467	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Maint. -- Other Equip.	\$ 1,000	\$ 1,030	\$ 1,061	\$ 1,093	\$ 1,126	\$1,030	2	\$ -	\$ 1,030	\$ -	\$ -	\$ -	\$ -	\$ -	
	Office Supplies	\$ 100	\$ 103	\$ 106	\$ 109	\$ 113	\$103	6	\$ -	\$ -	\$ -	\$ -	\$ 103	\$ -	\$ -	
	Books, Pub.,etc.	\$ 250	\$ 258	\$ 265	\$ 273	\$ 281	\$258	6	\$ -	\$ -	\$ -	\$ -	\$ 258	\$ -	\$ -	
	Other Commodities	\$ 2,580	\$ 2,657	\$ 2,737	\$ 2,819	\$ 2,904	\$2,657	6	\$ -	\$ -	\$ -	\$ -	\$ 2,657	\$ -	\$ -	
	Matls to Main-Other Equip	\$ 4,000	\$ 4,120	\$ 4,244	\$ 4,371	\$ 4,502	\$4,120	2	\$ -	\$ 4,120	\$ -	\$ -	\$ -	\$ -	\$ -	
	Automotive Equipment	\$ 170,252	\$ 55,000	\$ 56,650	\$ 58,350	\$ 60,100	\$55,000	6	\$ -	\$ -	\$ -	\$ -	\$ 55,000	\$ -	\$ -	
	Other Equip.	\$ 34,575	\$ 35,612	\$ 36,681	\$ 37,781	\$ 38,914	\$35,612	2	\$ -	\$ 35,612	\$ -	\$ -	\$ -	\$ -	\$ -	
	Computer Software	\$ 45,737	\$ 47,109	\$ 48,522	\$ 49,978	\$ 51,477	\$47,109	2	\$ -	\$ 47,109	\$ -	\$ -	\$ -	\$ -	\$ -	
	Transfer to Gen. Fund	\$ 2,862,466	\$ 3,233,517	\$ 3,831,657	\$ 3,965,765	\$ 4,104,566	\$3,233,517	2	\$ -	\$ 3,233,517	\$ -	\$ -	\$ -	\$ -	\$ -	
	Transfer to Lease/CAD	\$ 151	\$ 156	\$ 160	\$ 165	\$ 170	\$156	2	\$ -	\$ 156	\$ -	\$ -	\$ -	\$ -	\$ -	
	Transfer to Calease Fiscal	\$ 63,760	\$ 65,673	\$ 67,643	\$ 69,672	\$ 71,762	\$65,673	2	\$ -	\$ 65,673	\$ -	\$ -	\$ -	\$ -	\$ -	
		\$18,517,265	\$ 21,916,204	\$23,144,591	\$24,662,370	\$25,422,070	\$21,916,204		\$ 6,983	\$ 3,397,241	\$ -	\$ -	\$18,511,980	\$ -	\$ -	
		\$ 370,518	\$ 261,274	\$ 269,112	\$ 277,186	\$ 285,501	Check Total-->		\$21,916,204							
29420 -- Sewer Billing and Collection																
	Other Prof. Svs.	\$ 4,400	\$ 4,532	\$ 4,668	\$ 4,808	\$ 4,952	\$4,532	1	\$ 4,532	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Specialized Svs.	\$ 57,770	\$ 59,503	\$ 61,288	\$ 63,127	\$ 65,021	\$59,503	1	\$ 59,503	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Printing & Binding	\$ 11,280	\$ 11,618	\$ 11,967	\$ 12,326	\$ 12,696	\$11,618	1	\$ 11,618	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Postage	\$ 26,163	\$ 26,948	\$ 27,756	\$ 28,589	\$ 29,447	\$26,948	1	\$ 26,948	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Phone Svs.	\$ 1,846	\$ 1,901	\$ 1,958	\$ 2,017	\$ 2,078	\$1,901	1	\$ 1,901	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Maint-Software	\$ 8,500	\$ 8,755	\$ 9,018	\$ 9,288	\$ 9,567	\$8,755	1	\$ 8,755	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Maint-Off. Equip	\$ 565	\$ 582	\$ 599	\$ 617	\$ 636	\$582	1	\$ 582	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Office Supplies	\$ 459	\$ 473	\$ 487	\$ 502	\$ 517	\$473	1	\$ 473	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Other Commodities	\$ 1,000	\$ 1,030	\$ 1,061	\$ 1,093	\$ 1,126	\$1,030	1	\$ 1,030	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
		\$ 111,983	\$ 115,342	\$ 118,803	\$ 122,367	\$ 126,038	\$ 115,342		\$115,342	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
								Check Total-->		\$ 115,342						
29430 -- Sewer Service Risk Management																
	Other Prof. Svs.	\$ 1,924	\$ 1,924	\$ 1,982	\$ 2,041	\$ 2,102	\$1,924	4	\$ -	\$ -	\$ 1,924	\$ -	\$ -	\$ -	\$ -	
	Specialized Svs.	\$ 750	\$ 910	\$ 937	\$ 965	\$ 994	\$910	4	\$ -	\$ -	\$ 910	\$ -	\$ -	\$ -	\$ -	
	Printing & Binding	\$ 250	\$ -	\$ -	\$ -	\$ -	\$0	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Training	\$ 33,301	\$ 23,725	\$ 24,437	\$ 25,170	\$ 25,925	\$23,725	4	\$ -	\$ -	\$ 23,725	\$ -	\$ -	\$ -	\$ -	
	Other Commodities	\$ 2,350	\$ 1,850	\$ 1,906	\$ 1,963	\$ 2,022	\$1,850	4	\$ -	\$ -	\$ 1,850	\$ -	\$ -	\$ -	\$ -	
	Computer Equipup <\$1000	\$ 1,000	\$ 800	\$ 824	\$ 849	\$ 874	\$800	4	\$ -	\$ -	\$ 800	\$ -	\$ -	\$ -	\$ -	
	Safety Equip <\$1000	\$ 11,250	\$ 12,500	\$ 12,875	\$ 13,261	\$ 13,659	\$12,500	4	\$ -	\$ -	\$ 12,500	\$ -	\$ -	\$ -	\$ -	
	Computer Equip.	\$ -	\$ -	\$ -	\$ -	\$ -	\$0	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Other Equip.	\$ 12,000	\$ 12,000	\$ 12,360	\$ 12,731	\$ 13,113	\$12,000	4	\$ -	\$ -	\$ 12,000	\$ -	\$ -	\$ -	\$ -	
		\$ 62,825	\$ 53,709	\$ 55,320	\$ 56,980	\$ 58,689	\$ 53,709		\$ -	\$ -	\$ 53,709	\$ -	\$ -	\$ -	\$ -	
								Check Total -->		\$ 53,709						

		Annual Budget Summary					3		Cost Allocation						
Account No.	Description	FY03	FY04	FY05	FY06	FY07	Model	Customer	Capacity	Collect	Management	Treatment	Shared	Utilities	
			3%	3%	3%	3%		(Fixed)	(Fixed)	(Variable)	(Variable)	(Variable)	(Variable)	(Variable)	
Transfer to Stormwater															
	Storm Drain Fund Revenu	\$ 565,260	\$ 513,719	\$ 529,131	\$ 545,004	\$ 561,355	\$513,719	5	\$ -	\$ -	\$ -	\$ 513,719	\$ -	\$ -	
		\$ -	\$ -	\$ -	\$ -	\$ -	\$0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Subtotal	\$ 565,260	\$ 513,719	\$ 529,131	\$ 545,004	\$ 561,355	\$513,719	\$ -	\$ -	\$ -	\$ 513,719	\$ -	\$ -	\$ -	
Check Total-->									\$ 513,719						
Transfer to Capital Funds															
	SF Replacement Fund	\$ 469,501	\$ 483,586	\$ 498,094	\$ 513,036	\$ 528,428	\$483,586	4	\$ -	\$ -	\$ 483,586	\$ -	\$ -	\$ -	
			\$ -	\$ -	\$ -	\$ -	\$0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			\$ -	\$ -	\$ -	\$ -	\$0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
		\$ 469,501	\$ 483,586	\$ 498,094	\$ 513,036	\$ 528,428	\$ 483,586	\$ -	\$ -	\$ 483,586	\$ -	\$ -	\$ -	\$ -	
Check Total-->									\$ 483,586						
Other Revenues (enter as negative number)															
	Sale of Property		\$0	\$0	\$0	\$0	\$0	4	\$0	\$0	\$0	\$0	\$0	\$0	
	Interest & Rents	(\$338,221)	(\$231,469)	(\$238,413)	(\$245,565)	(\$252,932)	(\$231,469)	4	\$0	\$0	(\$231,469)	\$0	\$0	\$0	
	Industrial Waste Permits	(\$9,000)	(\$4,675)	(\$4,815)	(\$4,960)	(\$5,108)	(\$4,675)	6	\$0	\$0	\$0	\$0	(\$4,675)	\$0	
	Industrial Waste Comply.	(\$2,000)	(\$2,060)	(\$2,122)	(\$2,185)	(\$2,251)	(\$2,060)	6	\$0	\$0	\$0	\$0	(\$2,060)	\$0	
	Pump Station Maint.	(\$80,000)	\$0	\$0	\$0	\$0	\$0	4	\$0	\$0	\$0	\$0	\$0	\$0	
	Reimb. CIP Projects	(\$230,000)	(\$236,900)	(\$244,007)	(\$251,327)	(\$258,867)	(\$236,900)	2	\$0	(\$236,900)	\$0	\$0	\$0	\$0	
	District Assessments	(\$1,000)	(\$51,500)	(\$53,045)	(\$54,636)	(\$56,275)	(\$51,500)	4	\$0	\$0	(\$51,500)	\$0	\$0	\$0	
	Service Charge A/R	(\$65,000)	(\$66,950)	(\$68,959)	(\$71,027)	(\$73,158)	(\$66,950)	1	(\$66,950)	\$0	\$0	\$0	\$0	\$0	
	Wastewater Eng.	(\$97,900)	(\$107,052)	(\$110,264)	(\$113,571)	(\$116,979)	(\$107,052)	6	\$0	\$0	\$0	\$0	(\$107,052)	\$0	
	Past Due A/R	(\$143,000)	(\$203,571)	(\$209,678)	(\$215,968)	(\$222,448)	(\$203,571)	6	\$0	\$0	\$0	\$0	(\$203,571)	\$0	
	Other Revenues		\$0	\$0	\$0	\$0	\$0	7	\$0	\$0	\$0	\$0	\$0	\$0	
	Transfer from Trunk SF	(\$4,605,000)	(\$6,600,000)	(\$5,900,000)	(\$5,500,000)	(\$4,000,000)	(\$6,600,000)	6	\$0	\$0	\$0	\$0	(\$6,600,000)	\$0	
	Transfer from Other Fund		\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0	
	Rate Stabilization Reserve			\$0	\$0	\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0	
	Sewer Repay.-Rice Canyon	(\$20,800)	\$0	\$0	\$0	\$0	\$0	4	\$0	\$0	\$0	\$0	\$0	\$0	
	Sale of Metro Capacity	(\$110,398)	\$0	\$0	\$0	\$0	\$0	2	\$0	\$0	\$0	\$0	\$0	\$0	
			\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0	
		(\$5,702,319)	(\$7,504,177)	(\$6,831,302)	(\$6,459,241)	(\$4,988,019)	(\$7,504,177)		(\$66,950)	(\$236,900)	(\$282,969)	\$0	(\$6,917,358)	\$0	
Check Total-->									\$ (7,504,177)						